CRA

Final report

AIR PASSENGERS FROM THE BAY AREA'S AIRPORTS,
   2001 AND 2002

VOLUME 1: OVERVIEW AND METHODS

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1.
MTC's Airline Passenger Surveys, 2001 & 2002

The purpose and nature of the surveys

The San Francisco Bay Area's Metropolitan Transportation Commission (MTC) has undertaken surveys of departing passengers at the region's three large commercial airports at approximately five-year intervals since 1975. The surveys have been undertaken with the active cooperation (and financial support) of the three airport authorities. The four surveys conducted between 1975 and 1990 were limited to the summer ("peak travel") months only, but the one carried out in 1995 introduced a fall ("off-peak") phase as well.

The Airline Passenger Survey was not conducted in the year 2000, but a repeat was planned − again to be carried out with both a summer and a fall wave − for 2001. *Charles River Associates Incorporated*, with the assistance of *Polaris Research & Development*, was commissioned to carry out the work. The summer wave fieldwork was nearing completion (with only one further day of scheduled fieldwork remaining) on September 11th, 2001, when the terrorist attacks in New York and Washington DC caused the cessation for several days of all commercial air traffic throughout the United States, and depressed air travel for many months thereafter. The proposed fall 2001 survey wave was cancelled, and the funding was ultimately used to conduct another survey in the summer of 2002, scheduled to replicate closely the summer 2001 survey.

The achieved sample sizes for the 2001 and 2002 surveys were as summarized in Exhibit 1 and presented in greater detail later, in Exhibit 16.

Exhibit 1. Departing passengers surveyed, by airport and year

	2001	2002	Total
Oakland International Airport [OAK]	1,734	2,432	4,166
San Francisco International Airport [SFO]	2,580	3,710	6,290
Norman Y Mineta San José International Airport [SJC]	1,616	2,779	4,395
Total	5,930	8,921	14,851

The primary purpose and use of the series of departing passenger surveys has been for *ground access planning*. The questions, therefore, have focused primarily on details of the landside trip, and on the factors judged to influence ground access behaviors. The resulting databases are intended primarily to facilitate the modeling of ground access choices, to permit analysis of alternative policies with regard to airport access.

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MTC's Airline Passenger Surveys, 2001 & 2002

Innovations in the 2001 and 2002 surveys

While the content of the 2001/2002 questionnaire was substantially similar to that of the predecessor studies, several methodological innovations were introduced at this time. Most notably, the previous surveys had all been undertaken using *in-person* interviews of departing passengers. However, this method had not prevented, in the most recent (1995) survey, a significant amount of missing or ambiguous information regarding access trip origin locations.

Charles River Associates has considerable experience in designing and carrying out departing passenger surveys at airports across the country, for either ground access planning or intercity travel demand forecasting purposes. We have developed standard procedures that (we believe) provide the most cost-effective and efficient means of gathering the data. Specifically, we use attractive *self-completion* questionnaires, distributed to all eligible (and willing) boarding passengers identified in the gate lounge areas for a carefully-selected sample of flights. The passengers are encouraged to fill out their questionnaires while waiting to board the aircraft, and to return the completed forms before boarding. However, there is an option to mail back the completed form later (postage-free from points within the United States) if the respondent prefers.[1]

The content of the 2001/2002 questionnaire, while substantially similar to that of previous versions, nevertheless did incorporate some significant changes. It was based not only on the 1995 survey content but also on

- other departing passenger surveys conducted by OAK and SFO airport authorities in the interim period,

- CRA's past experience in the phrasing of key questions, from similar surveys at other airports, *and*

- some new foci of interest, most notably the introduction of a question about the sources of information used by departing passengers to learn about ground access travel options, and a question asking respondents to articulate explicitly the primary factors affecting their choice of travel mode.

Two other innovations also merit mention. First, we devoted more attention than we understand to have been given in the past to the *design of the sample* of flights, and to the associated weighting of the survey responses to represent correctly the universe of all eligible originating passengers. And secondly, we have developed a considerably more copious set of reference cross-tabulations from

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[1] This self-administered approach (as distinct from personal interviews) has long been used for the periodic ground access surveys conducted by both the *Port Authority of New York & New Jersey* (at EWR, JFK, and LGA) and the *Massachusetts Port Authority* (at BOS). In 1987, CRA conducted Massport's ground access survey, and significantly improved on previous practices and response rates.

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the survey data than appears to have been past practice. Our aim has been to provide reference resources that will answer the great majority of data users' questions from already-tabulated material.

The purpose of this report

This document is one of seven volumes resulting from the 2001 and 2002 Airline Passenger Surveys. Six of the volumes each provide, segmented by airport and by year, the 87 sets ("banners" in market research parlance) of reference tabulations. This present volume is intended to provide both a general overview of the surveys and a discussion of the survey methods, presented in adequate detail to assist in the interpretation of the data and to facilitate future replication.

In addition, this volume incorporates a small number of cross-airport tables, presenting key ground access statistics for all three airports and both years on the same page. We also draw attention to and comment on some possible anomalies in the data.

A brief outline of the survey method

The key elements of the CRA's standard procedures for airport passenger surveys are:

- Surveying only *departing* air passengers, and only in the gate lounge area while waiting to board their flights;

- Using a two-stage sampling technique, with a representative stratified sample of scheduled *flights* selected as the first-stage sample;[2]

- Using a *self-completion questionnaire* distributed to *all* eligible passengers assembled in the gate areas for sample flights, and collecting completed questionnaires back from most of them before departure;[3]

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[2] The practical effect (and purpose) of the stratification is to select the most heavily-laden flights with a higher probability than those using smaller equipment. A totally random sample of all flights would be less cost-effective because it would contain much higher proportions of flights with relatively few passengers, but (under this data collection method) the survey costs are more closely correlated with the number of *flights* sampled than with the number of individual *respondents*.

[3] We try to put a questionnaire into the hands of *all* eligible passengers departing on a sample flight because the marginal costs of doing so are very low compared with those of sampling additional flights. However, this design means that passengers on the larger equipment have a higher probability of being selected for the sample than those flying on smaller planes. We correct for these differences in the relative probabilities of selection by differential weighting at the analysis stage.

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- Facilitating *mailback* of completed questionnaires from those passengers who do not return them before boarding (particularly people arriving at the gate area close to the departure time); *and*

- Using *boarding counts* provided by the airlines as the basis for expanding the achieved sample in a manner that uses knowledge of travel party size to refine the resulting picture of aggregate ground access behavior.

This strategy has a number of very strong virtues by comparison with alternative methods:

- The *costs per completed interview* are lower than would be the case for an in-person questionnaire of comparable length, and the data quality is frequently of a comparable or better standard.

- Sampling *flights* provides the best statistical base for drawing a fully representative sample of all departing passengers.

- Intercepting *passengers* while they wait in gate lounge areas to board their flights results in a significantly higher response rate, in our experience, than attempting to intercept them at any other point in their (often luggage-laden or harried) passage through the airport. Moreover, it is the only sampling method where the relative probabilities of selection are known with a fair degree of accuracy.

- The option of *mailing back* completed questionnaires has proved to be an effective means of coping with the "late arriver" problem. With surveys using only in-person interviews late arrivers are ignored, yet they form a significant component of the passengers on high frequency "shuttle" flights (such as those between the Bay Area and Southern California), and their ground access behaviors may well be correlated with their "just in time" approach to catching the flight.

The first-stage sample of flights selected flights with probability proportional to the equipment capacity, as the closest available proxy for the anticipated loadings. The overall sample design, therefore, can be characterized as a two-stage sample, with primary sampling units selected with probability proportional to *estimated* (as distinct from *known*) size.[4] Further, we implicitly stratify[5] the sample by several variables that may well be correlated with ground access behaviors: scheduled departure time period, airline, and first destination category. The latter is a proxy for flight length,

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[4] This is a standard textbook case, treated (for example) in William G. Cochran, *Sampling Techniques, 3d ed.*, New York (NY): John Wiley & Sons, 1977, pp. 297–316.

[5] *Implicit* stratification does not involve using different sampling fractions across the implicit strata, but rather involves taking steps to ensure that those stratification variables are represented in the sample in proportion to their incidence in the parent population.

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which we expect to correlate with time spent away and hence with the amount of luggage carried per traveler.

The structure of this report

The next chapter presents the cross-airport summary tables of key ground access statistics. Chapter 3 discusses some possible anomalies in these data.

Appendix A provides a detailed description of the survey methods.

Appendix B provides a reduced-size copy of the English language version of the questionnaire.

Finally, *Appendix C* presents the specifications for the reference tables, so that the user can trace precisely how the rows and columns of the tables were derived from the questions asked in the survey. It also gives some pointers to interpretation of the data, including information germane to judging the precision of survey-derived percentages.

2.
A summary of key statistics across airports

The data products resulting from the surveys

The data developed from the Airline Passenger Survey responses have been provided to the Metropolitan Transportation Commission and to the participating airports in several forms:

- A substantial body of cross-tabulations has been prepared for each airport and survey year. These tables have been provided both as separate *MS Excel* workbooks (by airport and year) to afford easy electronic data manipulation, and as six ancillary volumes of this final report:

Volume F1	San Francisco International Airport, 2001
Volume F2	San Francisco International Airport, 2002
Volume J1	Norman Y Mineta San José International Airport, 2001
Volume J2	Norman Y Mineta San José International Airport, 2002
Volume O1	Oakland International Airport, 2001
Volume O2	Oakland International Airport, 2002

- The edited data files (with appended respondent weights) have been provided to MTC to permit further analysis.

- A number of cross-airport tables have been synthesized from the key tables developed for the individual airports, and they are presented in this chapter. Additionally, an *MS Excel* workbook version of these tables has been made available.

The cross-airport tables

The tables that follow show percentages drawn from the airport-specific tables referenced as the source. To derive the cross-airport estimates, we applied the airport-specific percentages to an estimate of the total number of originating (that is, non-connecting) enplanements from that airport in that calendar year (see Exhibit 21), and summed over all three airports. In some cases where judged appropriate, missing data or "don't know" responses have been removed from the base for percentages – such adjustments are acknowledged in the footnotes.[6]

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[6] In preparing the reference volumes, we have always shown explicitly the number of missing or "don't know" responses, following standard market research practice. The availability of tables in electronic spreadsheet format will greatly assist data users in making such adjustments as repercentaging without including missing data when they wish to do so. Users making data manipulations should bear in mind that the absolute number cell entries of weighted respondent counts have been rounded to the nearest integer, and that in many cases the more precise measure of the cell magnitude may be the percentage figure calculated to one decimal place.

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A summary of key statistics across airports

Exhibit 2: Market segment

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Resident business	13%	15%	10%	16%	13%	14%	9%	19%
Resident nonbusiness	40%	41%	44%	29%	34%	41%	32%	32%
Resident, trip purpose unknown	1%	1%	2%	1%	2%	2%	1%	1%
All travelers for whom Bay Area is "home"	54%	58%	56%	46%	48%	57%	42%	52%
Nonresident business	11%	10%	10%	16%	14%	13%	14%	14%
Nonresident nonbusiness	33%	31%	32%	37%	35%	27%	40%	31%
Nonresident, trip purpose unknown	1%	1%	1%	1%	1%	1%	1%	2%
All travelers for whom Bay Area is not "home"	46%	42%	43%	54%	50%	41%	55%	47%
Unknown residence status	1%	0%	1%	1%	2%	2%	2%	1%
All business trips	24%	25%	20%	32%	26%	27%	23%	33%
All nonbusiness trips	73%	72%	76%	65%	69%	68%	72%	62%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table A

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A summary of key statistics across airports

Exhibit 3: Ground access trip origin

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
San Francisco	19%	16%	27%	5%	25%	16%	39%	3%
Alameda County	16%	38%	12%	6%	15%	33%	10%	6%
[of which, Oakland]	5%	12%	4%	0%	5%	15%	2%	0%
Contra Costa County	8%	19%	6%	2%	8%	21%	5%	1%
San Mateo County	11%	4%	16%	6%	13%	3%	20%	9%
Santa Clara County	25%	1%	16%	67%	21%	2%	11%	66%
[of which, San Jose]	7%	0%	4%	22%	9%	1%	3%	31%
Marin County	2%	3%	3%	0%	4%	4%	4%	2%
Sonoma County	3%	5%	3%	0%	4%	7%	4%	0%
Napa County	1%	1%	1%	0%	1%	2%	1%	0%
Solano County	2%	2%	2%	0%	1%	2%	1%	0%
All other zip codes	13%	11%	15%	13%	8%	9%	5%	13%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Note: Responses with missing trip origin information are excluded from this table.

Source: Table D

A summary of key statistics across airports

Exhibit 4: Ground access trip origin type

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Own home	47%	53%	48%	41%	42%	49%	38%	45%
Someone else's home	21%	18%	19%	28%	22%	20%	22%	24%
A place of business	8%	8%	7%	11%	8%	11%	6%	12%
Hotel, motel, inn	21%	19%	24%	16%	24%	17%	31%	14%
Restaurant	1%	1%	2%	0%	1%	0%	1%	0%
Convention center	0%	0%	0%	1%	0%	0%	0%	1%
School, college	1%	1%	0%	1%	1%	2%	1%	1%
Other	1%	0%	0%	1%	2%	1%	1%	3%
Unknown	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table E

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A summary of key statistics across airports

Exhibit 5: Terminal arrival time

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Up to 09:00	32%	32%	29%	38%	34%	34%	34%	34%
09:01 to noon	21%	19%	20%	24%	26%	27%	26%	25%
12:01 to 15:00	13%	11%	14%	12%	13%	15%	13%	12%
15:01 to 18:00	12%	17%	10%	11%	11%	13%	9%	14%
18:01 to 21:00	11%	15%	10%	10%	9%	7%	9%	10%
After 21:00	8%	2%	13%	2%	3%	1%	4%	0%
Unknown	4%	5%	4%	4%	4%	4%	5%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table F

A summary of key statistics across airports

Exhibit 6: Access trip mode

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Private vehicle	57%	66%	51%	63%	55%	63%	46%	67%
Rental vehicle	18%	15%	17%	23%	19%	15%	20%	19%
All personal vehicle	75%	81%	68%	86%	74%	78%	67%	86%
Shuttle bus from train	3%	7%	2%	1%	3%	8%	2%	1%
Regular transit bus	1%	1%	1%	0%	1%	1%	1%	0%
Scheduled bus to airport only	3%	2%	4%	1%	3%	3%	4%	0%
All transit services	7%	10%	8%	2%	7%	12%	7%	2%
Taxicab	6%	2%	8%	5%	7%	3%	8%	7%
Hotel courtesy shuttle	3%	4%	4%	2%	3%	2%	4%	2%
Pre-arranged exclusive limousine	2%	1%	3%	2%	2%	2%	3%	1%
Pre-arranged shared-ride van	4%	2%	6%	1%	6%	3%	9%	2%
Chartered tour group bus	2%	0%	3%	1%	1%	0%	2%	0%
All such services	17%	9%	24%	12%	19%	10%	26%	13%
Other	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table H

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A summary of key statistics across airports

Exhibit 7: Respondent's final destination airport

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Trans-Pacific (except Hawaii)	7%	0%	12%	1%	2%	0%	3%	0%
Hawaii	6%	6%	9%	0%	3%	3%	3%	2%
Los Angeles Basin	14%	31%	4%	21%	15%	29%	6%	19%
San Diego region	5%	3%	5%	7%	8%	11%	2%	19%
Other California	0%	0%	1%	0%	0%	1%	0%	1%
Pacific Northwest, Alaska	6%	11%	3%	9%	8%	12%	5%	8%
Other FAA West region	15%	27%	8%	18%	15%	14%	16%	13%
Central & Midwest regions	8%	5%	8%	12%	12%	6%	14%	14%
East region	17%	9%	20%	20%	23%	14%	30%	16%
Canada	2%	1%	3%	2%	2%	0%	4%	1%
Central & South America, Caribbean	2%	1%	3%	3%	2%	2%	3%	1%
North & South Atlantic	8%	0%	15%	0%	4%	1%	6%	1%
Unknown	8%	5%	10%	5%	7%	8%	7%	6%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table N

Exhibit 8: Inbound trip airport and arrival time

All airports, both years

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Oakland	20%	86%	1%	1%	22%	80%	1%	3%
06:01 to 09:00	2%	7%	0%	0%	2%	7%	0%	0%
09:01 to noon	3%	14%	0%	0%	3%	12%	0%	0%
12:01 to 15:00	3%	14%	0%	0%	3%	12%	0%	0%
15:01 to 18:00	3%	13%	0%	0%	4%	15%	0%	2%
18:01 to 21:00	5%	19%	0%	0%	5%	17%	0%	0%
After 21:00	2%	10%	0%	0%	3%	13%	0%	0%
Arrival time unknown	2%	8%	0%	0%	2%	6%	0%	0%
San Francisco	46%	2%	84%	4%	44%	2%	85%	2%
06:01 to 09:00	3%	0%	5%	0%	2%	0%	3%	0%
09:01 to noon	6%	1%	11%	1%	9%	0%	18%	0%
12:01 to 15:00	7%	0%	13%	1%	7%	0%	14%	0%
15:01 to 18:00	8%	0%	14%	0%	7%	0%	14%	0%
18:01 to 21:00	10%	0%	19%	0%	8%	0%	15%	0%
After 21:00	6%	0%	12%	0%	7%	0%	14%	0%
Arrival time unknown	5%	0%	10%	0%	3%	0%	6%	0%
San Jose	30%	9%	11%	90%	29%	11%	10%	92%
06:01 to 09:00	1%	0%	0%	5%	1%	0%	0%	5%
09:01 to noon	4%	0%	0%	15%	3%	0%	0%	11%
12:01 to 15:00	3%	0%	0%	13%	3%	0%	0%	13%
15:01 to 18:00	3%	0%	0%	13%	3%	0%	0%	13%
18:01 to 21:00	4%	0%	0%	17%	5%	0%	0%	21%
After 21:00	3%	0%	0%	12%	3%	0%	0%	15%
Arrival time unknown	11%	9%	11%	15%	11%	11%	9%	14%
Other airport, or airport unknown	4%	3%	4%	6%	5%	7%	4%	4%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table 5

A summary of key statistics across airports

Exhibit 9: Egress trip mode

	2001				2002			
	All airports	OAK	SFO	SJC	All airports	OAK	SFO	SJC
Picked up by private vehicle	34%	28%	34%	40%	37%	35%	35%	43%
Private vehicle, parked	13%	22%	10%	14%	15%	20%	11%	18%
Rental vehicle	12%	10%	11%	15%	13%	10%	15%	14%
All personal vehicle	59%	60%	55%	68%	65%	66%	61%	76%
Train	3%	9%	1%	1%	3%	8%	1%	1%
Regular transit bus	1%	0%	1%	1%	1%	0%	1%	0%
Scheduled airport bus	3%	2%	5%	1%	3%	2%	4%	0%
All transit services	7%	12%	7%	2%	6%	10%	6%	2%
Taxicab, limousine	9%	3%	13%	8%	10%	6%	12%	9%
Shared-ride van	5%	3%	7%	1%	5%	3%	8%	1%
Charter bus	0%	0%	1%	0%	1%	0%	1%	0%
All such services	14%	7%	20%	10%	16%	9%	21%	10%
Other, or unknown	19%	22%	18%	20%	13%	16%	12%	12%
Total	100%	100%	100%	100%	100%	100%	100%	100%

Source: Table T

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3.
Some possible anomalies in the data

Apparent inconsistencies with previous surveys

This chapter discusses two instances that have been drawn to our attention of where the data in the 2001 survey appear to diverge from the patterns established in the series of previous MTC Airline Passenger Surveys.

It is, of course, quite feasible that air travel and ground access patterns in the summer of 2001 might differ significantly from those last measured in 1995. There was, after all, considerable structural change in both domestic and international aviation over the six-year period, and significant changes too in the services provided from all three airports.

However, there are extraneous reasons to question the correctness of the two seemingly anomalous statistics from the 2001 survey, which we will discuss below. In the case of the summer 2002 survey, the data characterize a post-09/11/2001 world in which it would not be surprising to observe some marked shifts in both air travel and ground access behaviors. Because of safety concerns, many people have been slow to return to flying and to making discretionary travel outside North America. The recession of the early 1990s also affected travel, and airlines – including some of the largest users of the Bay Area airports – have been restructuring to reduce financial problems.

Proportions of "resident" air travelers

The anomaly that concerns us the most relates to the proportion of originating passengers at SFO in 2001 claiming that the Bay Area was at the "home" end of their air trip. The survey's estimate of 56% appears to be anomalously high.

The market segments most frequently identified as relevant to airport access behaviors are the four categories defined by a combination of residence status ("resident," "nonresident") and air trip purpose ("business," "nonbusiness"[7]). It is typical to examine detailed trip patterns separately for the four categories. However, it should be observed at the outset that both classifications are a little indeterminate at the margins. Trip purpose is perhaps the cleaner of the two, but even so it is not uncommon for a single course of air travel to satisfy both business and nonbusiness purposes. CRA's routine practice is to make the business/nonbusiness classification on the respondent's answer to this question:

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[7] We avoid the terms "leisure" or "pleasure" travel often used in this context because they are inappropriate for many types of nonbusiness trips (e.g., travel to attend a funeral or respond to a family emergency).

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Some possible anomalies in the data

> "Is your air travel today *primarily* part of a business trip?
> >   Yes, my main reason for traveling has to do with my paid employment
> >   No, my main reason for traveling has nothing to do with business"

Residence status is more ambiguous. People may be making quite long ground access trips from their homes to reach a major hub airport like SFO, with its many non-stop links to long-distance domestic and international destinations. Some of these people may choose to drive in preference to more expensive commuter air connections departing from airports closer to their homes; some may have other, closer hubs to choose from, but with flights that in one way or another are less convenient to their needs. A definition of residence that was (for example) based solely on residence in the nine-county metropolitan area would exclude people driving to the Bay Area airports from (say) the Central Valley, from Sacramento, or from the central California coast.

CRA's practice is to base the resident/nonresident classification on answers to the following question:

> "Is this airport at the 'home' end of your air trip?"

It is not entirely clear from the report of the 1995 survey how residence status has been judged in previous surveys; that is not specified. We suspect respondents were classified strictly on Bay Area residence alone, which is decidedly more restrictive than our own definition. Exhibit 10 summarizes the "resident" proportions of ground access trips to each of the three airports in the MTC surveys since 1985.

The proportions of SFO's originating passengers in prior surveys have always been in the 35% to 40% range (although the summer wave figure for 1995 was probably a little over 40%). Our own estimate from the summer 2002 survey is 42%. However, from the 2001 survey the statistic is 56%, much higher than one would expect.

Undoubtedly, the more liberal definition of residence status introduced in 2001 accounts for some of the increase between the 1995 and 2001 surveys. But if that were the sole explanation, we would expect to see similar (albeit smaller) effects for the other two airports, and that is clearly not the case. Examination of Table U shows that of the SFO originating passengers specifying their home locations, the proportions of people classifying the Bay Area as at the home end of their trip while resident outside the nine-county metropolitan area was roughly 10% in both 2001 and 2002. At all three airports, the proportions of "residents" whose homes are outside the nine counties declined a little between 2001 and 2002.[8] So definitional issues don't appear to be at play in the sharp decline

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[8] At OAK, the proportion went from 12.1% in 2001 to 7.8% in 2002; at SFO, from 10.3% to 9.9%; and at SJC, from 21.9% to 19.8%.

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in the statistic at SFO between the 2001 and 2002 surveys, and we seriously doubt that much of the jump between 1995 and 2001 can be ascribed to the definitional change either.

Exhibit 10. Proportions of "resident" originating passengers by airport and year[9]

	Airport		
	OAK	SFO	SJC
Summer 1985	47%	36%	40%
Summer 1990	51%	38%	48%
Summer & Fall 1995	55%	39%	49%
Summer 2001	58%	56%	46%
Summer 2002	57%	42%	52%

Notes:

The potentially anomalous statistic is identified in red.

The summer 1995 data are not separated from the fall data by individual airport. Across all three airports, the summer 1995 statistic was 47% compared with 43% in the fall.

Of course, between 2001 and 2002 we might expect to see more data variability because of the impacts of the terrorist attacks. It is the increase in the statistic between 1995 and 2001 that is harder to rationalize. All of the possible regional economics-related explanations that one might hypothesize – declines in tourism volumes, effects of the bursting of the dot.com bubble, etc. – would be visible to at least some degree at the neighboring airports too, and that is not the case.

So the 56% statistic may be incorrect, but if it is, we have been unable to identify a credible cause. The questionnaire form was identical for all three airports, administered by substantially the same people in identical ways. The dates of the survey were substantially identical in 2001 and 2002. The sample design and processing of the data used identical procedures in the two years.

Investigation of internal consistency within the 2001 SFO data alone yields no clues that anything might be amiss. So, for example, the increased proportion of "residents" in the sample is paralleled by a higher proportion of access trips starting from the respondent's own home,[10] a higher proportion of access trips in private vehicles,[11] and a higher incidence of trips with wellwishers coming into the terminal to see the respondent off.[12]

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[9] The data from the 1985 and 1990 surveys were assembled by Roger Hooson of SFO.

[10] 48% in 2001 compared with 38% in 2002 (Table E).

[11] 51% in 2001 compared with 46% in 2002 (Table H).

[12] 26% in 2001 compared with 18% in 2002 (Table OB). Presumably increased airport security in 2002 also served to discourage wellwishers, however.

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Air travel destinations

The 2001 data for SFO also show another anomalously high statistic. In the 1998 survey carried out by SFO, it was estimated that 12% of originating passengers were bound ultimately for intercontinental destinations.[13] Our summer 2002 survey estimated the same proportion as 9%, at a time when overseas travel was still depressed by the effects of the terrorist attacks. The summer 2001 survey showed almost 27% of all originating passengers bound ultimately for intercontinental destinations, a figure so high as to be obviously incorrect by inspection.

However, despite the magnitude of this anomaly, it is both less troubling and more readily explicable. *Appendix C* describes how the sample was designed to reflect ground access patterns correctly as the highest priority, and the data describing airside behaviors were given lower priority. Of course, landside behaviors will be linked with trip destinations to some extent, and if the proportion of intercontinental passengers is incorrect, that will likely have some indirect effect on the accuracy of the ground access statistics. For that reason, we designed the sample to reflect six different trip destination categories in their proper proportions.

So, for example, in the 2001 SFO sample design, 6% of the departing seats in the full schedule of flights on sample days were on non-stop flights to transatlantic points and 13% of the departing seats were for transpacific points (including Hawai'i in this instance). After our final sample of flights had been selected, we checked how well the sample replicated these proportions. For the issued sample flights, 6% of seats were non-stop across the Atlantic while 15% were non-stop to transpacific points.

Of course, there is always the possibility of sample flight cancellations, substitutions, and differential load factors and response rates blurring the purity of the issued sample, but in the SFO 2001 achieved sample we ended up with just less than 17% of the unweighted responses mentioning an "intercontinental point" as the respondent's final destination. This seems very consistent with the sample design statistics. A total of almost 20% of all departing seats had a transatlantic or transpacific point as their first stop, but Hawai'i must account for a significant fraction of that total. On the other hand, a significant proportion of travelers ultimately destined for transatlantic points will have left SFO on domestic flights. With those considerations in mind, the 17% intercontinental proportion of unweighted responses is very credible.

The trouble has arisen in the weighting process. The evidence from the tables suggests that the weights applied to the intercontinental-bound passengers proved to be relatively high, deriving almost certainly from some large equipment flights having poor response rates, such that some

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[13] Data provided by Roger Hooson of SFO.

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respondents have ended up with very high weights.[14] It is this that has distorted the representation of overseas destinations in the weighted sample.

What might be done to correct this? With any credible "external" statistics to align the sample against – such as the full set of boarding statistics for all flights during the sample period that we had initially hoped to collect from airline station managers – it would be simple (but time-consuming) to compute a more balanced set of weights. Without such an external source, one is limited to using the statistics intrinsic to the sample itself – the known differential probabilities of selection, the differential response rates by flight, etc. – that we have employed in our weighting formulæ. The chance effects of a group of highly weighted observations could be reduced slightly by pooling data across several flights of a similar type when the response rates for a flight are inordinately low, but that would not necessarily be a total corrective for the problem. Happily, we have not detected similar problems with other data items.

Could the two anomalies be related?

To a certain (but limited) extent, yes. The relatively high weights occurring for some observations in the 2001 SFO sample could be contributing to an inflation of the "resident" passenger statistic. Indeed, Table F1A shows that the mean weight in the "resident nonbusiness" column is fairly high (although much less pronounced than for the intercontinental destinations group).

But the same table shows that, even if we remove all of the intercontinental destined passengers from the sample, the proportion of "residents" among the residual sample still remains anomalously high, at approaching 54%. So the acknowledged skew in the distribution of passengers by destination still cannot explain why so many of the SFO 2001 respondents were "residents." In the *unweighted* sample, still almost 52% of respondents said that the Bay Area was at the home end of their trips.

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[14] The "intercontinental" column of Table F1N shows that the mean weight for those respondents was 1.6, by comparison with a mean of 1.0 across the total sample.

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Appendix A.
A description of the survey methods

Basic scope and coverage decisions

In initial scoping discussions, it was decided to exclude regional carrier flights from the survey, as well as passengers transferring between flights at a Bay Area airport. The focus was to be on passengers making ground access trips to commence their air travel with a US major airline or foreign carrier from a Bay Area airport. This conformed with practice in prior years.

In the initial stages of planning for the 2001 survey, members of the study team visited each of the three airports to meet with the liaison contacts and to make a physical inspection of all relevant departure gate areas. This was done to assess whether any spaces were sufficiently problematic to warrant excluding them from the sample if that could be done without risk of biasing the sample as a result. We concluded that no gates should be automatically ruled out as survey distribution points, although in some cases survey personnel would need to cover adjacent territory to locate departing passengers outside of the immediate gate area.

The original intent of this project was to undertake a 2001 survey in two waves, in the summer and the fall of that year, corresponding to the practice adopted in 1995.[15] However, the penultimate day of the summer wave fieldwork schedule was September 11th, 2001, and the terrorist attacks on that day led to the cessation of all commercial aviation within, into, and outbound from the United States for several days thereafter. The residual summer wave fieldwork was cancelled. By the time anticipated for commencing fall fieldwork activities, it was apparent that the level of passenger air traffic was still significantly below previous levels, and it was decided to postpone the "off-peak wave" until the following year. A similar decision was made in the spring of 2002 that the conditions still did not warrant conducting an off-peak wave at that time. Finally, it was decided to undertake a survey in the summer of 2002, scheduled for the most part (for each of the three airports) on the corresponding days to those sampled in the previous year, and scaled to an identical total number of sample flights.

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[15] Historically, the survey had been conducted mostly in the summer, but in 1995 a fall wave was also introduced, with a roughly even split of the total sample between summer and fall. The hypothesis underlying the thinking about survey timing is that the fall wave represents the "normal" conditions obtaining for most of the year, whereas the summer wave represents those times of the year when the passenger traffic is augmented by greater volumes of non-business travel.

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Logistical planning

In advance of each year's survey, liaison contacts at each airport sent communications to all airline station managers informing them of the upcoming survey, stressing its value in ground access monitoring and planning, and asking for airline cooperation in specified ways. The communication was drafted by CRA, and tailored to their own specific situations by the airport personnel. In addition, CRA and Polaris staff spoke to the August meetings of domestic and international station managers at SFO prior to the 2001 survey, and to the SFO domestic station managers' meeting prior to the 2002 survey.

Approximately one to two weeks prior to the fieldwork, after the samples of flights have been selected, CRA's typical practice is to communicate again with the station managers of the airlines for which flights have been sampled, sending them the list of their flights selected for the sample, and asking them both to check the current validity of the flight information and to ensure that gate agents working sampled flights are informed in advance about the presence of survey fieldworkers. For the most part, that was done, although we were delayed in receiving the September 2001 flight listings from one of the airports and the communications to the station managers there were consequently less timely and complete than we would have liked.

Sample design and size

When the 2001 survey was originally designed, the sample for the summer period was intended to form the first (or "peak period") wave of the survey, to be complemented by a second (or "off-peak") wave to be completed in the fall. This two-phase design followed the pattern of the previous 1995 MTC Airline Passenger Survey.[16]

Based primarily on budget considerations, the target sample sizes by airport for the 2001 survey (in terms of "usable responses," across both summer and fall waves) were set at 5,000 for OAK, 10,000 fort SFO, and 7,000 for SJC. Inspection of the historical monthly enplanement data for all three airports suggested that the summer enhancement of non-business traffic is reflected in the four months from June through September. It seemed likely that most of the additional non-business travel falls into a somewhat shorter period (mid-June through August), but there are assorted other holiday periods in the year for which the non-business traffic is also enhanced. To represent the ground access behaviors during vacation-enhanced travel periods throughout the year, taking the four months of June through September as representative appeared reasonable.

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[16] Jennifer D Franz (1996), *1995 Metropolitan Transportation Commission Airline Passenger Survey – Final Report*, Sacramento (CA): J D Franz Research.

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The anticipated fall data collection wave, by contrast, was intended to represent the eight months of the rest of the year. Summing the relative enplanement volumes during the two periods and applying the proportions to the total target sample sizes suggested that the targets for the 2001 summer wave should be set at 1,720 usable responses for OAK, 3,830 for SFO, and 2,537 for SJC. Exhibit 11 shows the arithmetic of these targets in greater detail.

Exhibit 11. Determining target sample sizes for the 2001 survey, as originally anticipated

	OAK	SFO	SJC
Mean enplanements per month:			
June through September	881,778	1,883,811	586,856
rest of year	841,049	1,517,291	516,329
Proportion of total annual enplanements for:			
June through September	34.4%	38.3%	36.2%
rest of year	65.6%	61.7%	63.8%
Corresponding allocation of total target sample:			
summer wave	1,720	3,830	2,537
fall wave	3,280	6,170	4,463
total	5,000	10,000	7,000
Estimate of flights to be sampled			
summer wave	80	135	111
fall wave	152	217	197

Notes:

The OAK data are based on the previous three years' experience (as we had requested of all the airports), June 1998 through May 2001.

The SFO data are for the twelve months June 2000 through May 2001 only. They exclude commuter traffic but appear to include supplemental carriers.

The SJC data are for the twelve months of calendar year 2000 only, and exclude a small number of charter flight enplanements.

The *achieved* number of usable responses can differ from the planned number for a variety of factors. In particular, Exhibit 11 estimated the numbers of flights to be sampled by relying on our past response rate experience, as measured by the ratio of usable responses to aircraft seating capacity. Actual response rates at a specific airport may vary for several reasons (such as varying load factors, varying mixes of different types of flights, etc.).

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In the event, the summer 2001 survey achieved a sample of 296 flights at the three airports (out of a target of 304) before being closed down on September 11th.[17] Primarily because the load factors on those flights had proved to be lower than anticipated, the achieved number of usable responses (a little less than 5,900) fell short of the 8,000 targeted for the summer wave. In designing the 2002 summer survey, we set the sample size at the same total of 296 flights, distributed across the three airports identically to the achievement in the previous year.

Sample selection

Because of delays in finalizing our contract, the design of the 2001 fieldwork was influenced strongly by the practical issues of getting out into the field as rapidly as possible. We had four pragmatic objectives in planning for the 2001 survey, all of which carried through into the 2002 survey:

- From the point of view of ease of staffing and efficient fieldforce management, we avoided working at more than one airport on the same day.
- For each survey day, we scheduled two teams of fieldworkers during each of two eight-hour shifts, four different teams per day in total.
- By Labor Day, we aimed to complete roughly comparable percentages of the summer wave targets at each of the three airports.
- We tried to balance the weekdays scheduled for each airport, such that they included both heavier and lighter travel days.

Exhibit 12 shows the assignment of sample days to each airport.

For each airport, the list of scheduled flights during the survey period was provided by the airport, except at SFO (for which it proved necessary to purchase the flight listings from the John F Brown Company). We listed all the flights scheduled to depart from the airport on the sample days at that airport, treating the day as beginning at 02:00 in the morning of the designated day and continuing through to 01:59 the following morning.

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[17] The original scope of the summer 2001 survey also included the Sonoma County Airport (STS) in Santa Rosa, and indeed an additional two (of a planned four) flights had been covered there on September 11th before the nation's commercial aviation system closed down. However, commuter flights from STS were discontinued shortly thereafter, and the airport was not included in the 2002 survey.

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Exhibit 12. Sample days for each airport

	OAK	SFO	SJC
2001 survey:	August:	August:	August:
	Tu 28	Mo 27, Th 30, Fr 31	We 29
	September:	September:	September:
	Sa 1, Fr 7, Su 9	Mo 3, We 5, Sa 8	Su 2, Tu 4, Mo 10
2002 survey:	August:	August:	August:
	Tu 27, Sa 31	Mo 26, Th 29, Fr 30	We 28
	September:	September:	September:
	Fr 6, Su 8	Mo 2, We 4, Sa 7, Su 15	Su 1, Tu 3, Mo 9, Fr 13

Notes:

A pilot was conducted with three sample flights at SFO on We 08/22/01.

The 2002 dates after September 11th were added to reduce the work load for each day to a more easily managed scale.

We removed from the lists any flights we could identify as (i) flights by regional carriers, regardless of whether they were code-share flights with major or national carriers, or (ii) code-share pseudonyms for flights by a different carrier. To the record for each remaining flight we then added two additional codes. The first was an estimate of the seating capacity of the equipment, which was made on a carrier-specific basis (using seating charts from the printed version of the OAG or from the carrier website) whenever feasible. The second was a code for the location of the flight's first destination airport, based on its distance from the Bay Area:

1. California
2. Other FAA West (Region 6), plus British Columbia
3. Mid-country (all US destinations other than codes 1, 2, and 4; all Mexican and Canadian destinations except Montréal; all Central American destinations)
4. Transcontinental (airports in all US States along the east coast, plus Montréal)
5. Transatlantic
6. Transpacific (including flights to Hawaii).

The comprehensive list of flights on sample days for the airport was sorted by airline within distance code within departure time (day and time). The total seating capacity was then cumulated down the sorted list, and a sampling fraction was computed in the following way. In the 2001 survey we estimated (from previous analogous departing passenger surveys) that we could expect a net response rate of $r = 0.1625$ usable responses per departing seat, and in the 2002 sample selection we updated this value based on the 2001 survey experience. Let the total number of flights scheduled to depart from the airport over the survey days be F, with total seats S. Let the target of usable

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responses for the airport be n. Then the number of flights sampled, f (with total seats s), must be such that

$$s = \frac{n}{r} \tag{1}$$

Since the mean number of seats per flight is S/F, the best estimate of flights to be sampled is

$$f = \frac{sF}{S} = \frac{nF}{rS} \tag{2}$$

The sampling fraction, x, as measured by the total number of seats per selected flight, is consequently given by

$$x = \frac{S}{f} = \frac{rS^2}{nF} \tag{3}$$

We calculated x for each airport.[18] We then chose a start point by randomly selecting an integer between 1 and x, and selected the flight responsible for the seat assigned that number in the cumulative list. We then selected the flight responsible for every x^{th} seat thereafter until f flights had been selected. In this way, we selected a systematic sample of flights reasonably equally spaced in departure time, with selection probability proportional to seating capacity, ensuring (by virtue of the way the list was ordered) that the resultant sample should also be reasonably representative by airline and flight distance.

For the three "implicit stratification" variables – departure time,[19] airline, and flight distance – we next checked how well the sample distribution compared with the sampling frame of all flights from that airport, using chi-squared tests to indicate the magnitudes and causes of any significant divergences. If (on rare occasions) any chi-squared value was large enough to be significant at the 95% probability level, we generally redrew that sample, using a new random start point. Otherwise, we made a small number of manual adjustments to the sample to bring it closer in line with the characteristics of the sampling frame. At the same time (or later, in some cases), we made manual adjustments to reflect several other criteria:

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[18] The September 2001 schedule for SJC was not available at the time at which we needed to select flights for the first fieldwork day in August. Consequently, the 2001 SJC sample was selected in two parts. We computed a sampling fraction for the August day under the assumption that the September schedule (by day of week) would be identical to the August schedule. Later when the September schedule was available, we computed a revised sampling fraction for the September days, given the August sample already selected.

[19] Departure times were grouped into three-hour windows for the purpose of this comparison.

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- *Pilot survey design*
  From the flights selected at SFO for the 2001 survey, we chose three that exemplified the issues which we most wished to test in the pilot survey within a reasonably compact departure time window, and rescheduled those flights for the pilot survey date, September 22.

- *Potential language problems*
  At SFO, if an airline had been selected for which we anticipated language comprehension problems among a significant proportion of the boarding passengers, given the four languages in which questionnaires were produced, we substituted another airline traveling to a similar destination for which language problems were likely to be less pronounced. In practice, this applied solely to far eastern flights.

- *Avoid survey duplication*
  The corporate market research department at American Airlines was surveying passengers on a sample of flights at the same time as our 2001 fieldwork. Two AA flights in our sample for SJC were also in the American Airlines sample, and we made adjustments to avoid duplicate surveying.

- *Fieldwork logistics*
  In order to permit cost-effective fieldworker schedules and to alleviate some of the pressures caused by very short planning and execution times for the 2001 survey, (i) we ensured that the selected flights were sufficiently well-spaced in time that they could be handled by a maximum of two fieldworker teams; and (ii) for the days before Labor Day, we avoided scheduling sampled flights in the early morning (pre-06:00 departures) or late evening (after 22:30).

The manual adjustments were made for the most part by retaining the same flight identities but exchanging the dates on which that flight would be covered (where feasible), switching a compensating flight back to the day in question. In some cases, particularly those changes made to achieve a closer match to the sampling frame, a sampled flight was switched to another airline's flight, or to a flight in a different distance category, or to the next or prior flight by the same airline to the same destination.

Questionnaire design

The questionnaire was developed by Charles River Associates in active consultation with a technical advisory committee comprising representatives of the Metropolitan Transportation Commission, the three airports, and the Bay Area Rapid Transit District. The basic philosophy was to follow the general content of the 1995 MTC survey, adapting it from a personal interview to a self-administered format, and reflecting insights from a variety of other sources:

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- the more recent surveys of departing passengers that had been carried out by OAK and SFO;

- CRA's experience in designing and conducting self-completion departing passenger surveys at a variety of other airports; *and*

- updating the survey content to introduce some new questions and remove some of the old questions judged to be less useful.

The aim was to limit the questionnaire length to fit on a standard legal-size (8½″ x 14″) sheet, in a two-fold, six-panel format. The folded size of the questionnaire is then 8½″ high by 4⅔″ wide. One of the six panels is used as a business reply face, for later return (postage-free from within the United States) by those respondents who choose not to complete the questionnaire before boarding the flight.

Chinese, Japanese, and Spanish translations of the questionnaire were printed as well as the English language version. They were intended primarily for use with flights to overseas countries, although a supply of each was on hand for use on *any* sampled flight should respondents be encountered who would prefer to use one of those versions.

A reduced-size copy of the English version of the questionnaire has been provided in Appendix B of this volume, and the .pdf version of the volume also includes full-sized copies of all versions.

For the 2001 survey, supplies had been printed sufficient to cover both waves anticipated for the survey. When the fall wave became, in fact, the summer 2002 survey, it was decided to use the residual supply of questionnaires, despite the fact that the title of the survey included "2001" and the household income question asked specifically about the year 2000. Along with the questionnaire, the fieldworkers in 2002 distributed a small flyer explaining that the 2001 survey had been disrupted by the events of September 11th, but was now being resumed. The income question should be answered with respect to the year 2001, not 2000. Polaris staff believe that respondent empathy with this situation was a contributing factor in the higher response rate achieved in 2002 (to be discussed later).

Fieldwork

The fieldworkers for the surveys were recruited, trained, and employed by Polaris. Some worked at more than one airport, while others worked at one airport only. The field supervisors were drawn from Polaris' regular survey staff. All fieldworkers participated in a 2- to 3-hour training session on the days immediately prior to the commencing work on the survey. The training familiarized the staff with the survey procedures, the geography of the airport, and the principal objectives of the survey. The fieldworkers were also given a written manual of instructions based on a standard text

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used by CRA for airport departing passenger surveys, and tailored to the specifics of this survey by Polaris.

Similarly, CRA's standard field documents were used to monitor progress and to report the boarding count data obtained from gate agents after a sampled flight had departed. Fieldworkers were each provided with a "cobbler's apron" in a bright yellow color, with "Official airport survey" stenciled in blue on the back and right breast. They carried a card that explained, in a variety of languages, that questionnaire versions in Spanish, Chinese, and Japanese were also available. For each sample flight, they were allocated a batch of successively-numbered questionnaires and a supply of pencils, along with the control sheet – the "Fieldworker Record Sheet" – on which they recorded details for each potential respondent that they approached. This sheet also had the script for the set of questions used in screening the potential respondents. The 2001 survey version is shown in Exhibit 13.

Polaris employed teams comprising between two and six fieldworkers, adequately supervised, to screen passengers and distribute the questionnaires. The actual number of fieldworkers assigned to a flight was determined by the anticipated loading. A team would carry one or more large boxes used for the return of questionnaires; these were placed at strategic points in the gate lounge area so that the people completing questionnaires before boarding could return them easily. The teams kept track of the serial numbers distributed for each sampled flight, and bundled the questionnaires returned at the gate by their flight number, because experience has taught that many people do not fill in the correct flight number on the questionnaire.

Polaris' supervisors were responsible for supervising the survey and resolving any unanticipated situations. Rules were developed for sample substitutions in the event that a sampled flight was delayed seriously or cancelled (see Exhibit 14). During the early days of the 2001 survey, a staff member from CRA's Oakland office observed the fieldwork at each airport, and made suggestions for logistical improvements.

After a departing sample flight had closed, the team supervisor would question the lead gate agent about the boarding counts for the flight, and enter the numbers on the "Flight Summary Sheet" (see Exhibit 15). Very occasionally, the gate agent might be unaware of the station manager's agreement to cooperate in the survey and would refuse to provide the requested boarding counts, even after being shown copies of authorizing letters. In those cases, Polaris would first attempt to obtain the missing information later by calls to the airline's station office, and in a few cases where all attempts had failed, CRA would estimate the missing data by comparison across similar flights, using multivariate estimation models.

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Exhibit 13. Fieldworker Record Sheet for the 2001 survey

Bay Area Air Passenger Survey, 2001
Fieldworker Record Sheet

Airport (circle one)**: OAK   SFO   SJC   STS**   **Date: ___ / ___ / 2001**

Airline & flight number: _____   **Scheduled departure: ___:___   AM   PM**

Fieldworker name: _____

Screening questions:

- "Hello. I am **[your name],** and we're contacting passengers on behalf of **[use as appropriate:** Oakland International / San Francisco International / San José International / Sonoma County**]** Airport**.** Are you traveling on **[airline name]** flight **[number]** to **[city]** today? **[If the flight has more than one destination, either name them all or say instead** 'that's leaving from this gate' **(or** 'gate number ___')**]**"

  If no, terminate and thank.

- **If yes, continue:**
  "Is the air trip that you're making now starting here at **[use as appropriate:** Oakland International / San Francisco International / San José International / Sonoma County**]** Airport, or are you just changing planes here?

- **If respondent's trip is starting here and the respondent is younger than 16, thank and tally below:**

Put a check mark for each passenger younger than 16	*Total*

- **If respondent's trip is starting here and the respondent is 16 or older, continue:**
  "The airport is conducting a special survey on this flight today, to find out how people traveled to the airport. Would you please fill out this questionnaire before you board? All answers are confidential. If you finish it before you board you should hand it back to me or one of the other surveyors in this sort of uniform. If you have any questions while you're filling it out, just see me or anyone else with these yellow aprons. If you don't want to complete it now, you can take it with you and mail it back later **[show business reply face]**."

- **If respondent is changing planes here, continue:**
  "We're counting the number of people who are changing planes. Have any of my colleagues wearing this yellow apron asked you these questions already?"

  Thank.

Tally all passengers changing planes (all ages), who haven't been tallied already:

Put a check mark for each counted passenger changing planes	*Total*

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Exhibit 14. Rules for substituting for seriously disrupted flights

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Basic premise

The survey supervisor has the option, depending on fieldworker staffing capability, to survey a disrupted flight on a subsequent sample day for the same airport. Preferably, the day selected will be consistent with the type of day in which that flight was originally scheduled.

Alternatively, the following rules will apply.

Rules for substitutability

1. From the master list of scheduled departures, identify all unsampled flights scheduled to leave within 40 minutes before or after the canceled flight, and that share similar characteristics with the cancelled flight (in particular, the same distance category).

2. If more than one possible substitute meets this criterion, choose from among them by applying the following rules, in order of priority:

    a) Choose the flight closest in **number of seats** to the cancelled flight.
    b) Choose the **same airline** as the canceled flight.
    c) Choose a replacement from the **same terminal** as the canceled flight.
    d) Choose the eligible substitute that can be covered most easily.

Response summary

Exhibit 16 summarizes the levels of response experienced with the survey in both 2001 and 2002.

The 2001 summer survey returns fell somewhat short (by about 27%) of the targeted numbers of responses at all three airport airports. We ascribe this to several reasons − most importantly, mean responses per flight assumptions that were consistent with CRA's prior experiences in Californian airports but which proved overly optimistic because of lower than expected load factors on the flights and lower than expected distribution rates for the questionnaires.

In 2002, both the distribution rates and the response rates improved markedly at all three airports. We ascribe this in part to the increased experience of the Polaris teams in conducting the survey, and to a slightly less frenetic work schedule as measured by the number of flights assigned to each sample day. But more importantly, it is due in large part to an increased willingness of the eligible passengers both to accept a questionnaire and to complete and return it. This marked increase in cooperation levels may have been helped by the interviewers' explanation to potential respondents that the survey had been interrupted and postponed by the events of September 11th, 2001. Whatever

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Exhibit 15. Flight Summary Sheet for the 2001 survey

Bay Area Airline Passenger Survey, 2001
Flight Summary Sheet

Airport (circle one):   OAK   SFO   SJC   STS

Date: ____/____/2001

Name: _____(Team Leader)

Airline and Flight number: _____

Flight destination:_____(Next Stop)

Starting time: _____

Ending time: _____

Number of departing passengers: a) originating _____

  b) continuing _____(from Gate agent)

Number of children:_____(from FRSs)

Number of connect passengers_____(from FRSs)

Scheduled departure time: _____

Actual departure time: _____

Total questionnaires distributed:_____

Serial number blocks distributed			
Begin number:	End number:	Begin number:	End number:

Comments:_____

_____

_____

_____

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Exhibit 16. Summary of response, 2001 and 2002 surveys

	2001 survey				2002 survey			
	Total	OAK	SFO	SJC	Total	OAK	SFO	SJC
Target sample of flights	326	80	135	111	296	76	131	89
Achieved sample of flights	297	76	132	89	296	76	131	89
Seats on sample flights	46,596	10,022	24,127	12,447	45,438	10,055	22,582	12,801
Estimated total boarders	31,141	7,370	16,642	7,129	30,148	7,609	15,231	7,308
Estimated eligible boarders	24,874	6,345	12,673	5,856	23,702	6,625	10,970	6,107
Questionnaires distributed	11,121	2,983	5,298	2,840	13,921	3,591	6,383	3,947
Questionnaires returned:								
at gate	5,735	1,694	2,490	1,551	8,720	2,406	3,632	2,682
by mail	278	93	120	65	326	86	136	104
Analysis rejects	(83)	(53)	(30)	(0)	(125)	(60)	(58)	(7)
Usable questionnaires	5,930	1,734	2,580	1,616	8,921	2,432	3,710	2,779
Mean load factor	67%	74%	69%	57%	66%	76%	67%	57%
Mean eligibility rate	80%	86%	76%	82%	79%	87%	72%	84%
Mean distribution rate	45%	47%	42%	48%	59%	54%	58%	65%
Mean response rate	53%	58%	49%	57%	64%	68%	58%	70%
Mean responses per flight	20.0	22.8	19.5	18.2	30.1	32.0	28.3	31.2

Notes:

This table is based substantially on field counts, supplemented with CRA estimates in respect of a small number of the sample flights for which the field data are not complete.

Eligible boarders excludes people continuing on or connecting to the sample flight, and those passengers aged under 16. The "mean load factor" is the total estimated boarders divided by the total seats. The "mean eligibility rate" is the proportion of all boarders eligible to be given a questionnaire. The "mean distribution rate" is the total questionnaires distributed divided by the estimated total of eligible boarders. The "mean response rate" is the total usable questionnaires divided by the number distributed.

the reason, the number of usable responses yielded by approximately the same number of sample flights increased by over 50%.

Load factors and eligibility rates were comparable for both years at all three airports. In both years, the ranking of airports by mean load factor was identical, with OAK having the highest value and SJC the lowest. As expected, the mean eligibility rate at SFO − a hub airport with a relatively high proportion of connecting (or continuing) passengers − was lower than that for the other two airports.

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Mean distribution rates tend to vary across airports, years, and survey purposes decidedly more than other response influences, in CRA's experience. The goal is to place a questionnaire in the hands of *all* eligible passengers departing on a sampled flight. But in practice, the distribution rate is affected by, *inter alia*, (i) refusals to be screened, or to accept a questionnaire if found eligible after screening; (ii) language problems, most notable when there is a significant number of international flights in the sample; (iii) the proportions of "late arrivers" for a flight (likely to be a function of air trip distance and service frequency)[20] and of passengers choosing to spend pre-boarding time in airline clubs, bars, restaurants, or retail outlets; and (iv) the efficiency and diligence of the fieldwork team.

Enplanement data

For the 2001 survey, CRA wrote to all airline station managers at each of the three airports, requesting (on a fully confidential basis) boarding count data for *all* of their flights departing on survey sample days. The purpose of requesting this information was for use in expanding the survey sample – in particular, (i) to ensure that the weighted sample correctly reflects the distribution of departing passengers by *time of day*, and (ii) to provide a control total of passengers to be represented in the weighted tables. A similar procedure has been used as part of the periodic ground access surveys carried out at Boston's Logan International Airport for many years. A form was designed for reporting the numbers, by flight, and arrangements were made for the faxing of numbers on a daily basis to CRA's Oakland office, which handled this part of the survey logistics. Unfortunately, the level of cooperation from the airlines proved to be so low that the data provided a statistically inadequate basis for determining the actual distribution of departing passengers by time of day. Accordingly, this element of the survey design was not attempted in the 2002 survey. We learned subsequently that cooperation levels for this element have also declined at Logan, and it has now been dropped from the 2003 departing passenger survey that CRA is conducting there.

Coding and editing procedures

CRA provided to Polaris the following detailed instructions for the manual editing and coding of completed questionnaires:

General principles
The formal coding of the questionnaires will begin by undertaking a quick scan of each questionnaire to determine its possible validity for subsequent coding. We propose to use the

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[20] The increased need for early arrival at the airport to negotiate enhanced security provisions in 2002 may have helped spur the improved distribution rates.

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following cumulative criteria for the acceptance of a completed questionnaires as a valid response:

- The inclusion of apparently valid trip origin location information at Q.2, specified *at least* to the town, street (or distinctive building) within city, *or* zip code levels. Alternatively, if Q.3 is coded as "your own home" and Q.18 specifies the location of that home to the town or zip code level, this is acceptable in lieu of adequate detail at Q.2.

- To be "apparently valid" the location at Q.2 (or Q.18, when relevant) should be within reasonable range for a ground access trip to the Bay Area airport, using the mode indicated at Q.5.[21]

- Q.5 must be completed to a usable level (see coding instructions below).

- At least one question has been answered adequately from Q.15 to the end of the questionnaire (see coding instructions below).

- The general tenor of responses, and the method of completion, should suggest that it is a *sincere* response, not a frivolous or "joke" submission.

The general approach to the *manual* coding and editing of questionnaires is to ensure that all judgments are made that require inspection of the physical questionnaire to interpret the respondent's intention. Edit checks will subsequently be made by computer, and this will help to identify a portion of invalid or inconsistent entries. The manual editor needs to spend less time worrying about potential inconsistencies across questions that can subsequently be picked up by computer than in resolving such issues as difficult handwriting, imprecise markings of check boxes, and respondent notes explaining, qualifying, or amplifying precoded answers.

Editors should use colored pencils for any entries made on the questionnaire forms, to identify clearly that this was the editor's – and not the respondent's – entry. Similarly, care should be taken to ensure that editors' markings do not obscure the original respondent entries.

Text entries

As a general principle, we will recode any "*Other (specify)*" responses that fall *clearly and unambiguously* into one or more of the precoded categories listed for the question ("more" applies only to questions where multicoding is permissible.) Otherwise, enter *verbatim* the responses to open-ended questions, editing only to be readable and consistent. For example, different ways of writing San Francisco, such as SF, San Fran, and San Francisco, should all be written the same way. More specific examples are mentioned below.

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[21] Specifically, the location provided by a non-resident of the region should not be such as to suggest that it was the origin for a prior *inbound* flight into the Bay Area.

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Numerical entries

Unless otherwise specified for the particular question, leave the fields for missing entries blank. Similarly, there is no need to enter leading zeroes in response boxes that indicate a certain number of digits in the answer, unless instructed to do so.

Coding/editing instructions for specific questions

In the discussion that follows, the names of all database fields are shown in italics.

Return method: In the top left-hand corner of the front page of the questionnaire, enter a two character (upper-case) code for the airport, based on the questionnaire bundle from which this was derived or on the serial number if returned through the mail:

OG = OAK, returned at gate   OM = OAK, returned by mail
FG = SFO, returned at gate   FM = SFO, returned by mail
JG = SJC, returned at gate   JM = SJC, returned by mail
RG = STS, returned at airport   RM = STS, returned by mail

Serial number:
Enter all five digits, with leading zeroes as necessary. For any responses without serial numbers, assign unique numbers outside the pre-printed ranges. Note that Spanish questionnaires begin with 7, Japanese with 8, and Chinese with 9. All other leading digits denote English language questionnaires.

Q.1: *Airline code*:
Enter the standard two-character (upper-case) airline code. Attached is a table showing these codes for all airlines operating at SFO, OAK, and SJC (Attachment A).

Flight number: Record up to 4 digits.

Month: Code as a 2-digit number.

Date: Code as a 2-digit number

Q.2: *Origin location*:
It is particularly important that all information entered at this question be as complete as possible. For any unclear entries, the editor should PRINT his/her best interpretation of the words for data entry purposes. Each separate field identified on the questionnaire (*building, etc.*; *street details*; *city/town*; *state*; *zip code*) should appear as a separate field in the electronic file. For any of these fields not completed, leave blank.

Q.3 *Type of place*:
Enter number for the one box checked:

1 = your own home
2 = someone else's home
3 = a place of business

> 4 = a hotel, motel, inn
> 5 = a restaurant
> 6 = a convention center
> 7 = a school or college
> 8 = another type of place (enter any text in the next field, *other type of place*)
> 9 = no response

If more than one box has been checked, the editor should try to determine which of the checked boxes is the more applicable, using (i) any building or firm name entered at Q.2 (e.g., hotel or restaurant names); and (ii) the home address information entered at Q.18. If unable to resolve multicodes clearly, enter only the one *lower/lowest* applicable number code. [*Example*: a respondent working from home checks both 1 and 3. The response is coded as 1 only.]

Q.4 *Access trip departure and arrival times*
Both of these should be coded using the twelve-hour clock, plus the AM and PM code. *However*, if the respondent has used the 24-hour clock basis for entering the times (i.e., hours specified in the range 13 through 23), *do not recode* the time but use code 3 for the AM/PM category.

Both the hours and minutes categories should have added leading zeroes if necessary to ensure that two digits are entered in each case. Leave missing time fields blank, but supply any missing AM/PM codes if they are obvious. If a time entry looks odd or ambiguous, the editor should try to resolve the respondent's meaning as far as possible by reference to (i) the scheduled departure time for this flight (look up); (ii) the less ambiguous or puzzling of the two entries, and presumed travel time given the airport, origin location (Q.2), and mode (Q.5). If unable to resolve, leave the entry blank.

AM/PM category:
> 1 = AM
> 2 = PM
> 3 = 24-hour clock
> 9 = missing, *and unable to infer*

Q.5 *Access mode*:
This should be a single coded response, but when a respondent has checked two or more codes we want to preserve as much information as possible about the trip. The editor should decide which mode was used *to arrive at* the airport by examining the following clues:

- If Q.6 = yes, or Q.7 responses indicate that a private vehicle was brought to the airport, that strongly suggests that the correct response at Q.5 is a private or rental vehicle.

- Check any response to Q.8, which is supposed to be answered only by people coming to the airport by train or bus, to see what clues that provides.

If, for example, private vehicle and bus were both checked at Q.5, "drive and park" were checked at Q.8, and Qs.6/7 give no indication that a vehicle was brought to the airport, the

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most likely explanation is that the respondent drove to catch a bus. In this case, the Q.5 response would be changed to indicate the bus only.

If the response to Q.5 indicates that the respondent *flew* into the airport, the questionnaire becomes a reject. Either (i) the person is connecting flights at this airport, in which case (s)he should have been screened out and not given a questionnaire; or (ii) the respondent has misunderstood the question, but as a result has not provided sufficient information for this to be counted as a valid questionnaire.

The codes for Q.5 are:

> 1 = private vehicle
> 2 = rental vehicle
> 3 = shuttle bus from train
> 4 = regular transit bus
> 5 = scheduled bus
> 6 = taxicab
> 7 = hotel/motel courtesy shuttle
> 8 = pre-arranged limo
> 9 = pre-arranged shared-ride
> 10 = chartered bus
> 11 = by some other means (enter any text in the next field, *other access mode*)

Since the lack of a response at this question creates reject questionnaire, there is no code for missing information.

Q.6 *Curb dropoff?*:
Although this question should only be answered for Q.5 = 1,2, code for all respondents as follows:

> 1 = yes
> 2 = no
> 9 = response missing

Q.7a *Parking status*:
Although this question should only be answered for Q.5 = 1, code for all respondents as follows:

> 1 = driven away
> 2 = parked short-term
> 3 = parked long-term
> 4 = parked off airport
> 9 = response missing

Q.7b *Parking duration*:
Although this question should only be answered for (Q.5 = 1 *and* Q.7a = 2-4), code for all respondents as follows:

> 1 = 4 hours or less

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        2 = over 4 hours

        3 = longer than 24 hours

        9 = response missing

Q.7c *Parking days*:

If (and only if) Q.7b = 3, code the number of days entered, using "99" for missing responses.

Q.8 *Access to transit*:

Although this question should only be answered for Q.5 = 3-5, code for all respondents as follows:

        1 = walk

        2 = drive + park

        3 = dropped off

        4 = taxicab

        5 = other public transit

        6 = some other way (enter any text in the next field, *other transit access*)

        9 = response missing

Q.9 *Access costs reimbursed?*:

        1 = yes

        2 = no

        9 = response missing

Q.10 *Accompanying non-travelers*:

For missing entries, insert zero (0) unless no question after Q.10 has been completed *(in which case the questionnaire will be a reject)*.

Q.11 *Information source 1*, *information source 2*, *information source 3*:

Use up to *three* fields to enter up to three responses checked. Note that the last response (code 11) should be edited out if any other response is checked. Also, code 11 can only be used in the first field.

If four or more responses are checked:

- code the *first* three checked responses if the respondent serial number is odd, or

- code the *last* three checked responses if the respondent serial number is even.

The codes are:

        1 = airport information

        2 = travel agent

        3 = business contacts

        4 = friends/family

        5 = transit information

        6 = hotel concierge

        7 = traffic information

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8 = travel guide (enter any text in the field *Travel guide*)
9 = internet site (enter any text in the field *Website*)
10 = other (enter any text in the field *Other source*)
11 = none (valid for *Information source 1* only)

If this question is unanswered, enter code 11 in *Information source 1*.

Q.12 *Mode driver 1*, *mode driver 2*, *mode driver 3*:
Use up to *three* fields to enter up to three responses checked. Note that the last code (code 99) can only be used in the first field. If four or more responses are checked:

- code the *first* three checked responses if the respondent serial number is odd, or

- code the *last* three checked responses if the respondent serial number is even.

The codes are:

1 = travel time
2 = dependability
3 = cost
4 = travel party size
5 = luggage volume
6 = rental car return
7 = parking considerations
8 = private vehicle unavailable
9 = public transport unavailable
10 = comfort, convenience
11 = safety, security
12 = someone else decided
13 = another reason (enter any text in the field *Other mode driver*)
99 = missing response (valid for *Mode driver 1* only)

Q.13 *Trip purpose*.
Code as follows:

1 = business (yes)
2 = non-business (no)
9 = missing response

Q.14 *Destination airport*.
The text entries here are not to be recorded in the electronic file. Rather, the coder uses the airport name and state/country to ascertain the three-letter standard airport code for that airport, and writes it (upper-case) on the questionnaire beneath the airport name entry. A reasonably comprehensive list of airport codes can be found at

http://www.travelersnet.com/Airport Codes/E.htm,

but a shorter hard-copy list of those most likely to be found was also appended to the coding instructions.

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Q.15a *Children in party*.
If missing, enter zero (unless no further questions have been answered, in which case the questionnaire is rejected).

Q.15b *Adults in party*.
If missing or zero, enter one (unless (i) no further questions have been answered, in which case the questionnaire is rejected; or (ii) Q.15c has been completed, in which case enter the edited value of Q.15c).

Q.15c *Anticipated travel party questionnaires*.
If missing or zero, enter one (unless no further questions have been answered, in which case the questionnaire is rejected). If greater than Q.15b, edit to be equal to Q.15b (*unless* Q.15b is missing, in which case edit Q.15b to equal Q.15c).

Q.16 *Checked bags, carry-on bags*.
In either field, if missing, enter zero.

Q.17a *Home end of trip?*
If missing,

- check first whether Qs.17b,c have been answered in one column only. If so, code Q.17a in the same column.
- If the Bay Area is closer to home (Q.18) than is the destination airport (Q.14), *and* home is no more than ~500 miles away, code 1. Otherwise, if Q.14 and Q.18 are both answered such that this test can be applied, code 2.

The codes are:

      1 = home end (yes)
      2 = not home end (no)
      9 = missing response, and unable to code on the above criteria

Q.17b *Duration away* (left-hand column), *duration here* (right-hand column).
Leave blank the field for the column not selected (by the Q.17a response). Recode this question with the number of days taken, with "today" = 0, "tomorrow" or "yesterday" = 1, and otherwise the number of days specified. If missing, code 999 unless Q.17a = 9, in which case leave blank.

Q.17c *Arrival airport* (one field only, regardless of column).
Code as follows:

      1 = Oakland International
      2 = San Francisco International
      3 = San José International
      4 = none of these, or DK

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Q.17d *Egress time of day* (one field only, regardless of column).
This should be coded using the twelve-hour clock, plus the AM and PM code. *However*, if the respondent has used the 24-hour clock basis for entering the times (i.e., hours specified in the range 13 through 23), *do not recode* the time but use code 3 for the AM/PM category.

Both the hours and minutes categories should have added leading zeroes if necessary to ensure that two digits are entered in each case. Leave missing time fields blank, but supply any missing AM/PM codes if they are obvious. If unable to resolve, leave blank.

AM/PM category:
> 1 = AM
> 2 = PM
> 3 = 24-hour clock
> 9 = missing, *and unable to infer*

Q.17e *Egress mode 1*, *egress mode 2*, *egress mode 3*.
Use up to *three* fields to enter up to three responses checked. If four or more responses are checked:

- code the *first* three checked responses if the respondent serial number is odd, or

- code the *last* three checked responses if the respondent serial number is even.

The codes are:
> 1 = picked up
> 2 = parked vehicle
> 3 = rental vehicle
> 4 = taxicab, limousine
> 5 = shared-ride van
> 6 = train
> 7 = transit bus
> 8 = airport bus
> 9 = charter bus
> 10 = some other way, or DK

Q.18 *Hometown*, *home state*, *home zip*.
As with the trip origin, the coder should edit for legibility. Enter text for home town. For home US state, enter the two-letter postal code for the state (a full set of the codes was provided as an attachment to the coding instructions), or text for the country. Zip codes are all numeric, and are for US-resident respondents only; otherwise leave blank, even if a postal code for another country has been entered.

Q.19 *Household adults*, *household children*.
For the adults field, if zero is entered recode as 1. For either field, code 99 for missing values.

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Q.20 *Sex.*
If missing but the editor can tell the sex with fairly high probability from a name entered at Q.23, recode in line with that judgment. The codes are:

> 1 = male
> 2 = female
> 9 = missing response, and unable to code from Q.23 response

Q.21 *MRY departures*, *OAK departures*, *SMF departures*, *SFO departures*, *SJC departures*, *STS departures*.
If left blank, code as zero. For *this* airport only, recode any blank or zero to 1.

Q.22 *Gross household income*.
Recode any blanks, multicodes, or ambiguous entries as 10. The codes are:

> 1 = <$20k
> 2 = $20k-<$40k
> 3 = $40k-<$60k
> 4 = $60k-<$80k
> 5 = $80k-<$100k
> 6 = $100k-<$125k
> 7 = $125k-<$150k
> 8 = $150k-<$200k
> 9 = $200k+
> 10 = refused, DK

Q.23a *Respondent contact*.
Code as follows:

> 1 = respondent has provided a legible name (even if just first or last name) *and either*
> an adequate mailing address (including street and number), *or* a telephone
> number, *or* an adequate email address (with both name and domain name)
> 9 = respondent hasn't provided such contact detail

Q.23b *Respondent name*, *respondent address*, *respondent day phone*, *respondent leisure*
phone, *respondent email*.
Edit for legibility. For any unclear entries, the editor should PRINT his/her best interpretation of the words for data entry purposes. Each separate field identified on the questionnaire should appear as a separate field in the electronic file. For any of these fields not completed, leave blank.

Geocoding procedures

The geocoding of trip origins was also carried out by Polaris, with (in the case of the 2001 dataset) close review of the resulting data by both CRA and MTC. Geocoding databases for the

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Metropolitan Transportation Commission's nine-county area were loaned to Polaris by MTC to facilitate this task. The survey records include both the alphanumeric responses entered onto the questionnaire and the results of the geocoding attempts to assign those responses to a five-digit zip code area at a minimum and/or latitude and longitude specifications where the reported detail permits.

Data weighting procedures

There are several reasons why the survey responses needed to be weighted for the purposes of the analyses to be performed on the data:

- *Basic sample design needs*
  The general philosophy of the sample design is that flights are selected with probability proportional to equipment capacity, as the best available proxy for relative loadings.[22] If there were perfect correlation between capacity and loadings (that is, if every flight had the same load factor), a "self-weighting" sample (that is, one not requiring any additional weighting) would be obtained by the random selection of an *equal* number of respondents per flight. But with the self-completion method the marginal costs of additional passengers per flight is much lower than the marginal costs of additional sample flights, so the most cost-effective (and logistically easy) approach is to seek responses from *all* eligible passengers on the selected flight. This design, however, does "oversample" passengers on the "larger" flights, and weighting is necessary to correct for this.

- *Varying load factors by flight*
  The seating capacity of the plane is an imperfect proxy for the numbers of passengers, and weighting is also necessitated because of the variance in load factors.

- *Varying response rates by flight*
  The proportion of qualified departing passengers providing usable responses can vary across flights for a wide range of reasons. Weighting is required to reflect this variation in response rates.

- *Inference of common behavior within travel parties*
  The questionnaire asks respondents to indicate the size of their travel parties (defined as sharing a common vehicle for *both* the air and *ground access* travel), and also the number of travel party members filling out questionnaires. These estimates are used to infer aspects of today's travel behavior (both airside and landside) for non-responding members of the travel party. Hence, we develop a separate weight for the responses to ground access behavior

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[22] If the sample selected flights with *equal* probability, it would be inefficient because it would involve a much larger number of "smaller" flights.

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questions from that used (for the same respondent) for such non-inferable characteristics as age, sex, income, travel inbound to the Bay Area, etc.

Some of this weighting is obviously a function of the data available, and is dependent on the level of cooperation by both the airports and airlines. We have already remarked on the low level of response received to our 2001 request to airline station managers to report (on a confidential basis) the boarding counts for all scheduled flights departing on the sample days at each airport. Those data were originally intended to ensure that the achieved sample could be weighted to better reflect the departure time-of-day profile of all passengers flying out of each airport. When it became apparent that we would not be given adequate data to allow us to make such an alignment, we adjusted our data weighting plans accordingly.

Step 1: Correct for travel party size effects.

From Q.15 responses, let A_{ij} and C_{ij} be (respectively) the numbers of adults and children in the travel party reported by the jth respondent on flight i. Let R_{ij} be the reported total number of *respondents* from this travel party.[23] Then for those ground access variables that are expected to be identical for all travel party members (that is, details of today's air trip and ground access trip to the airport), compute the first stage weight as

$$ w_{1ij} = \frac{A_{ij} + C_{ij}}{R_{ij}} \qquad (4A) $$

For all other variables that may vary across members of the travel party,

$$ w_{1ij} = 1 \qquad (4B) $$

Step 2: Weight the responses to reflect total ground access passengers for each sample flight.

From the information gathered from the lead gate agent after the flight has closed, let b_i be the best estimate of the number of originating (that is, not continuing) passengers on flight i.[24] From analysis of the fieldworker screening records for flight i, let t_i be the best estimate of the number of *non-eligible* (that is, either under age 16 or *connecting* passengers[25]) taking the flight. Compute the second stage weight as

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[23] Typically, we accept the respondent's response here, although there are several reasons why that may be an incorrect estimate of the total number of usable responses received from the travel party. It would be feasible to spend considerably more time in developing internal checks to refine the estimate of R_{ij}, but we suspect that this is essentially "noise" that will have minimal effect on the survey findings.

[24] Note that the passengers who are originating on any specific flight may include people transferring here from other inbound flights.

[25] Some uncertainty is introduced by the fact that some continuing passengers on a flight that is not originating at the surveyed airport may also be counted in the gate lounge area as connecting passengers.

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$$w_{2ij} = \frac{b_i - t_i}{\sum_j w_{1ij}} \qquad (5)$$

Step 3: Weight each flight by the inverse of its selection probability.

Consider time period k, where time periods are (at the most aggregate) a day but may well reflect major segmentations of that day (for example, morning/afternoon/evening or peak/offpeak). Let S_i be the number of seats attributed to flight i, and let n_k be the total number of flights scheduled to depart in time period k. Compute the third stage weight as

$$w_{3i} = \frac{\sum\limits_{i \in n_k} S_i}{n_k S_i} \qquad (6)$$

Step 4: Final computation of compound weights.

The two weights used to expand (i) the ground access responses and (ii) all other responses to totals that represent numerically all ground-access passengers flying out of that airport on the survey days are given by[26]

$$w_{ij} = w_{1ij} \bullet w_{2ij} \bullet w_{3i} \qquad (7)$$

For each airport and each year, we scaled the resultant weights such that the weighted total of responses was equal to the unweighted total. Since we did not have a control total of enplanements from each airport on each sample day (another purpose of the boardings information originally requested from all station managers), there is no basis for expanding the sample data to estimate the absolute volumes of ground access passengers. In these circumstances, we judge it best to show numbers in the survey tabulations that reflect the scale of the *sample*, rather than any artificial estimate of total trip volumes.

It should be noted that not all of the completed questionnaires received in departing passenger surveys come from sampled flights. There is always a small number from passengers departing on other flights, ascribable to ambiguously defined or communal gate lounge areas, hurried or

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[26] Note that there is some inconsistency between the way in which children (those aged under 16) are treated between the computation of weights w_{1ij} and w_{2ij}. The two adjustment factors are derived from different data sources (questionnaire responses in the case of w_{1ij} and fieldworker screening records in the case of w_{2ij}). There may be inconsistencies in the ways members of the same travel party have provided the responses germane to w_{1ij}, and the fieldworker screening records may be incomplete if not all boarders have been identified for screening. Under these circumstances, we do not regard the computation of the overall weight as in any sense an analytical or "accounting" procedure requiring complete consistency between the individual components being multiplied, but rather we compute each component independently as our best, easy accessible estimate of broad variations in the individual factors motivating the weighting.

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inadequate screening, questionnaires abandoned by eligible passengers, and "survey envy" on the part of people departing on other flights. As the time dwindles down before boarding, we would far rather the fieldworkers get questionnaires into the hands of all late arrivers than spend the time screening each one more meticulously.

Where such a returned questionnaire has been completed by an originating passenger with a genuine ground access trip, we typically do not discard it. Rather, we look to see which sample flight the questionnaire was associated with (by questionnaire serial number), and in computing weights we treat the respondent as if he or she were departing on that flight. As long as this phenomenon represents a very small fraction of all responses, we do not expect that any distortions in the weighted data will result.

Appendix B.
Questionnaire design and content

English language text

The next two pages provide a reduced-size copy of the English language version of the questionnaire. The full-sized document was printed on both sides of a standard legal (8½″ x 14″) sheet, in a two-fold, six-panel format. The folded size of the questionnaire was 8½″ high by 4⅔″ wide. The document was printed on sufficiently heavy stock to permit undamaged return through the mail by those respondents opting to mail back their completed forms.

Metropolitan Transportation Commission
www.mtc.ca.gov

San Francisco Bay Area
Airline Passenger Survey, 2001

Why you have been given this questionnaire

This airport, in cooperation with the Metropolitan Transportation Commission and your airline, is conducting a survey to help improve travel to and from the airport.

Who should complete the questionnaire

Every person aged 16 or older boarding this flight – except for those who arrived here by air – is asked to fill out a questionnaire. When several people are traveling together, each one (except for children aged 15 or under) should complete his or her own form.

How to return completed questionnaires

Hand the completed form to one of the surveyors before boarding the plane, or put it in a marked collection box. If you don't have time to complete it fully now, take it with you, complete it later, fold it so the postage-paid address is on the front, and drop it in any mail box as soon as possible.

All your replies are completely confidential. Thank you for your help – it is very important to us.

About your trip to the airport for this flight

1. Which flight are you taking (or were you taking when given this form)?

_____ on _____ on _____, 2001
airline   flight no.   month   date

For the Bay Area transportation agencies to improve ground travel options to this airport, it is very important for us to know exactly where passengers start their trips to get to the airport. Please **give as much detail as you are able.** The information will be kept confidential.

2. **From what address** did you start your trip **today** (on the ground) to the airport for this flight?

_____
building, firm, or specific location name, if applicable (e.g., hotel name, a notable building, or private firm)

_____
Street address, with number (or name of the nearest cross street)

_____ | _____
City or town   State   Zip code, if you know it

continue
inside ➔

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Finally, about yourself (for classification purposes only)

18. Where is **your home**?

_____ | _____ | _____
City or town   State or country   Zip code, if in USA

19. In total, how many people live in your household, including yourself?

_____ adults (aged 16+)

_____ children (up to 15)

20. Are you ...   ☐ male?   ☐ female?

21. In the last twelve months, how many times have you flown out of each of these airports? *(Include today's trip; where none, enter zero)*

Monterey Airport _____

Oakland International Airport _____

Sacramento International Airport _____

San Francisco International Airport _____

San José International Airport _____

Sonoma County Airport (Santa Rosa) _____

22. What was the **total combined income** (before taxes) for everyone living in your household for the year 2000? *(Check one only)*

☐ under $20,000
☐ $20,000 to under $40,000
☐ $40,000 to under $60,000
☐ $60,000 to under $80,000
☐ $80,000 to under $100,000
☐ $100,000 to under $125,000
☐ $125,000 to under $150,000
☐ $150,000 to under $200,000
☐ $200,000 or more
☐ I can't say

23. **Optional:**

If you would be willing to answer some more questions in the future about your use of the airports in the Bay Area, please provide your name and preferred contact details below. If you prefer to remain anonymous, leave this question blank. We will not share this information with anyone else, but use it only for future air passenger surveys.

Name: _____

Full mailing address: _____

Telephone: (___) _____ (___) _____
            daytime   evenings, weekends

e-mail address: _____ @ _____

Thank you very much for your help. Please hand your completed questionnaire to the survey staff before boarding, or mail it back to us postage-free.

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3. Is the place where you started your trip to the airport.... (Check one only)
- your own home?
- someone else's home?
- a place of business?
- a hotel, motel, inn, etc.?
- a restaurant?
- a convention center?
- a school or college?
- another type of place? (write in:

4. At what time did you ...
leave the above starting point? [hour] : [mins] ☐ A.M. ☐ P.M.
arrive inside the airport terminal? [hour] : [mins] ☐ A.M. ☐ P.M.

5. How did you arrive at the airport today? (Check one only to show the form of transport you used to reach the airport or nearby parking or rental car facilities)
- private vehicle (car, van, SUV, motorcycle, etc.)
- rental vehicle (car, van, SUV, etc.) — continue with question 6
- shuttle bus from a train (BART, Caltrain, or VTA light rail)
- a regular transit bus route (not from a train)
- scheduled bus to the airport only (sometimes called Airporter) — skip to question 8
- taxicab
- a hotel/motel courtesy shuttle
- pre-arranged limousine serving your travel party
- pre-arranged shared-ride van giving door-to-terminal service — skip to question 9
- chartered bus, carrying your tour group only
- by some other means (What? _____)
  If you're not sure which box to check, write the firm name here

6. If you came by a private or rental vehicle, were any passengers dropped off at the curb in front of the terminal entrance?
- yes, some passengers were dropped at the terminal curb
- no, passengers were not dropped at the curb

7. If you came by private vehicle, was it ... (Check one only)
- driven away from the airport by someone without being parked?
- parked in a short-term lot or garage at the airport?
- parked in a long-term lot (or economy/overflow lot) at the airport?
- parked in a lot or garage off the airport grounds?

For how long do you expect it to be parked? (Check one only)
- 4 hours or less
- over 4 hours but less than 24 hours
- longer than 24 hours; For how many days (or part days)? [total days] — open and continue inside

2

8. If you came to the airport by train or bus, how did you get to the place where you boarded the train or bus? (Check all that apply)
- walk
- drive and park
- dropped off there
- taxicab
- other public transit
- some other way (write in:

9. Will your ground transportation to the airport or your parking cost be reimbursed by your employer or other organization? (Don't count payment by a friend or relative.)
- yes, some or all of the costs will be paid back to me
- no, my costs will not be reimbursed

10. How many people have come into the terminal just to see you (and other members of your travel party) off?
Enter the number (if none, enter zero): [box]

11. In deciding how to travel to the airport today, did you personally consult any of the following sources of information? (Check up to three to show the most important sources of information)
- airport information desk, brochure, or phone number
- travel agent
- business contacts
- friends or family
- public transport brochure, display, or phone number
- hotel concierge, flyer
- traffic information (radio, TV, TravInfo® 817-1717, etc.)
- travel guide (which?
- internet site(s) (which?
- other (what
- none of these, or don't know

12. What are the most important reasons that influenced how you traveled to the airport today? (Check up to three to show the most important reasons)
- door-to-door travel time
- dependability
- cost
- the size of your travel party
- the amount of your luggage
- need to return a rental car
- parking considerations
- no private vehicle available
- no public transport available
- comfort, convenience
- safety or security concerns
- someone else decided for me
- another reason (write in:

About your air travel today

13. Is your air travel today primarily part of a business trip?
- yes, my main reason for traveling has to do with my paid employment
- no, my main reason for traveling has nothing to do with business

14. What will be your final destination airport on today's air trip?
_____ airport   _____ US state or foreign country

3

15. In total, how many people in your personal travel party came to the airport in the same vehicle and are traveling on the same flight with you? (Don't forget to count yourself. If none in a category, enter zero)
number of people aged 15 or under: [box]
number of people aged 16 or over, including you: [box]

16. How many of the people aged 16 or over are filling out a questionnaire of their own, including you? [box]
In total, how many pieces of luggage are all the people you counted in Question 15 taking on this flight? (If none, enter zero)
total number of pieces of luggage checked: [box]
total number of carry-on pieces: [box]

17. Is this airport at the "home" end of your air trip?
☐ yes   ☐ no

(yes) →
What day will you return to the Bay Area?
- today
- tomorrow
number of days after today [box]
Which airport will you return to?
- Oakland International
- San Francisco International
- San José International
- none of these, or don't know
What time of day will your return flight arrive in the Bay Area?
[hour] : [mins] ☐ A.M. ☐ P.M.

(no) →
What day did you arrive in the Bay Area?
- today
- yesterday
number of days ago [box]
Which airport did you arrive at?
- Oakland International
- San Francisco International
- San José International
- none of these
What time of day did your flight arrive in the Bay Area?
[hour] : [mins] ☐ A.M. ☐ P.M.

How did you travel from the airport when you arrived? (Check all that apply)
- picked up by someone else in a private vehicle
- private vehicle, parked at the airport
- rental vehicle
- taxicab, limousine
- shared-ride van
- train (BART, Caltrain, VTA)
- regular transit bus
- scheduled airport bus
- charter bus
- some other way, or not sure

fold in and continue →

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Appendix C.
Specification and interpretation of the cross-tabulations

Units of measure used in the tables

Note that all of the reference tables count individual *departing air passengers*, not other units of measure (like the numbers of *travel parties* or *private vehicles* used in ground access trips) that would be meaningful (and potentially useful) numeraires in the case of some of the tables.

Definitions of banner columns

Exhibit 17. Specifications for the first banner

Col.	Label	Definition
1	All respondents	All respondents meeting any filter criteria for the table
	Market segment	
2	Resident business	Q.17a:1 and Q.13:1
3	Resident nonbusiness	Q.17a:1 and Q.13:2
4	Nonresident business	Q.17a:2 and Q.13:1
5	Nonresident nonbusiness	Q.17a:2 and Q.13:2
	Access mode	
6	Private vehicle	Q.5:1
7	Rental vehicle	Q.5:2
8	Scheduled transit or private bus	Q.5:3−5
9	Taxicab	Q.5:6
10	Shared-ride van	Q.5:9
	Travel party size	
11	One	(Q.15a+Q.15b)=1
12	Two	(Q.15a+Q.15b)=2
13	More than two	(Q.15a+Q.15b)≥3

Specification and interpretation of the cross-tabulations

Exhibit 18. Specifications for the second banner

Col.	Label	Definition
1	All respondents	All respondents meeting any filter criteria for the table
	Trip duration	
2	Up to 2 nights	Q.17b:1
3	3 to 6 nights	Q.17b:2
4	Over a week	Q.17b:3 and Q.17b'>1
	Trip origin	
5	San Francisco	Q.2: San Francisco origin zips
6	East Bay	Q.2: Alameda, Contra Costa origin zips
7	Peninsula, South Bay	Q.2: San Mateo, Santa Clara origin zips
8	Northern counties	Q.2: Marin, Napa, Solano, Sonoma origin zips
	Destination airport	
9	California	Table N: rows 3−5
10	Other west	Table N: rows 2,6−7
11	Other US	Table N: rows 8−9
12	Intercontinental	Table N: rows 1,12, or Q.14:CCS,GIG,GRU,LIM,MQV
13	Wellwishers came into terminal	Q.10>0

Exhibit 19. Specifications for the third banner

Col.	Label	Definition
1	All respondents	All respondents meeting any filter criteria for the table
	Annual Bay Area departures	
2	1 departure	Table VD: row 1
3	2−3 departures	Table VD: rows 2−3
4	4−10 departures	Table VD: rows 4−6
5	11 or more departures	Table VD: rows 7−10
	Access cost reimbursed?	
6	None	Q.9:2
7	Some, all	Q.9:1
	Gross household income last year	
8	Less than $60k	Q.22:1−3
9	$60k to less than $100k	Q.22:4−5
10	$100k to less than $150k	Q.22:6−7
11	$150k or more	Q.22:8−9

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Specification and interpretation of the cross-tabulations

Col.	Label	Definition
	<u>Sex</u>	
12	Male	Q.20:1
13	Female	Q.20:2

Definitions of tables and rows

Exhibit 20. Specifications for tables and rows

Tbl.	Label	Definition
A	<u>Market segment</u> (residence & purpose)	
	Resident business	Q.17a:1 and Q.13:1
	Resident nonbusiness	Q.17a:1 and Q.13:2
	Resident, trip purpose unknown	Q.17a:1 and Q.13:9
	All travelers for whom Bay Area is "home"	In lines 1-3 above
	Nonresident business	Q.17a:2 and Q.13:1
	Nonresident nonbusiness	Q.17a:2 and Q.13:2
	Nonresident, trip purpose unknown	Q.17a:2 and Q.13:9
	All travelers for whom Bay Area is not "home"	In lines 5-7 above
	Unknown residence status	Q.17a:9
	All business trips	Q.13:1
	All nonbusiness trips	Q.13:2
B	<u>Airline</u>	
	Alaska Airlines	Q.1a:AS
	America West Airlines	Q.1a:HP
	American Airlines (incl. TWA)	Q.1a:AA, or TW
	Continental Airlines	Q.1a:CO
	Delta Air Lines	Q.1a:DL
	Northwest Airlines	Q.1a:NW
	Southwest Airlines	Q.1a:WN
	United Airlines	Q.1a:UA
	US Airways	Q.1a:US
	Other domestic	Q.1a:AQ, B6, F9, HA, N7, TZ, or YX
	All domestic carriers	In lines 1-10 above
	All foreign carriers	Q.1a:AC, BA, BR, CI, KL, LH, MX, SQ, TA, VS
	Airline unknown	Q.1a:missing

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
CA	<u>Day of week</u>	Based on date coded in Q.1b, as follows:
	Monday	2001: 08/27, 09/03,10; 2002:08/26, 09/02,09
	Tuesday	2001: 08/28, 09/04,11; 2002:08/27, 09/03,10
	Wednesday	2001: 08/22,29, 09/05; 2002:08/28, 09/04,11
	Thursday	2001: 08/30, 09/06; 2002:08/29, 09/05,12
	Friday	2001: 08/31, 09/07; 2002:08/30, 09/06,13
	Saturday	2001: 09/01,08; 2002:08/31, 09/07,14
	Sunday	2001: 09/02,09; 2002:09/01,08,15
	Unknown	Date missing
CB	<u>Date</u>	Based on date coded in Q.1b, as follows:
	Through Labor Day	2001: 08/22 - 09/03; 2002:08/26 - 09/02
	After Labor Day	2001: 09/04 -11; 2002: 09/03 - 15
	Unknown	Date missing
D	<u>Access trip origin</u>	
	San Francisco	Q.2: San Francisco origin zips
	Alameda County	Q.2: Alameda origin zips
	Oakland	Q.2: Oakland origin zips
	Contra Costa County	Q.2: Contra Costa origin zips
	San Mateo County	Q.2: San Mateo origin zips
	Santa Clara County	Q.2: Santa Clara origin zips
	San Jose	Q.2: San Jose origin zips
	Marin County	Q.2: Marin origin zips
	Sonoma County	Q.2: Sonoma origin zips
	Napa County	Q.2: Napa origin zips
	Solano County	Q.2: Solano origin zips
	Outside the nine counties	Q.2: all other origin zips
	Unknown	Q.2: origin zip missing or incomplete
E	<u>Access trip origin type</u>	
	Own home	Q.3:1
	Someone else's home	Q.3:2
	Place of business	Q.3:3
	Hotel, motel, inn	Q.3:4
	Restaurant	Q.3:5
	Convention center	Q.3:6
	School, college	Q.3:7
	Other	Q.3:8
	Unknown	Q.3:9

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Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
F	Terminal arrival time	
	Up to 09:00	Q.4b:from 00:01A through 09:00A
	09:01 to noon	Q.4b:from 09:01A through 12:00P
	12:01 to 15:00	Q.4b:from 12:01P through 03:00P
	15:01 to 18:00	Q.4b:from 03:01P through 06:00P
	18:01 to 21:00	Q.4b:from 06:01P through 09:00P
	After 21:00	Q.4b:from 09:01P through 00:00A
	Unknown	Q.4b:missing
G	Access trip duration	Based on time (in mins.) between Q.4a and Q.4b, as follows:
	Up to 30 minutes	1–30
	31 to 60 minutes	31–60
	61 to 90 minutes	61–90
	91 to 120 minutes	91–120
	Over 120 minutes	121 or more
	Unknown	Q.4a or Q.4b:missing
H	Access trip mode	
	Private vehicle	Q.5:1
	Rental vehicle	Q.5:2
	All private/rental vehicles	In lines 1-2 above
	Shuttle bus from train	Q.5:3
	Regular transit bus	Q.5:4
	Scheduled bus to airport only	Q.5:5
	All transit services	In lines 3-5 above
	Taxicab	Q.5:6
	Hotel courtesy shuttle	Q.5:7
	Pre-arranged exclusive limousine	Q.5:8
	Pre-arranged shared-ride van	Q.5:9
	Chartered tour group bus	Q.5:10
	All such services	In lines 6-10 above
	Other	Q.5:11

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
J	Personal vehicle disposition	
	Driven away, with dropoff at terminal	Q.7a:1 and Q.6:1
	Driven away, no terminal dropoff	Q.7a:1 and Q.6:2
	Rental return, with dropoff at terminal	Q.5:2 and Q.6:1 and Q.7a:missing
	Rental return, no terminal dropoff	Q.5:2 and Q.6:2 and Q.7a:missing
	Vehicle parked, with dropoff at terminal	Q.7a:2-4 and Q.6:1
	Vehicle parked, no terminal dropoff	Q.7a:2-4 and Q.6:2
	Unknown details	All Q.5:1-2 not in lines 1-6 above
K	Vehicle parking location and duration	
	Airport short-term parking, up to 4 hours	Q.7a:2 and Q.7b:1
	Airport short-term parking, 4 up to 24 hours	Q.7a:2 and Q.7b:2
	Airport short-term parking, 1 to 3 days	Q.7a:2 and Q.7b:3 and Q.7c:01-03
	Airport short-term parking, 4 to 7 days	Q.7a:2 and Q.7b:3 and Q.7c:04-07
	Airport short-term parking, over 7 days	Q.7a:2 and Q.7b:3 and Q.7c>07
	Airport short-term parking, duration unknown	Q.7a:2 and Q.7b:9
	All airport short-term parking	In lines 1-6 above
	Airport long-term parking, up to 4 hours	Q.7a:3 and Q.7b:1
	Airport long-term parking, 4 up to 24 hours	Q.7a:3 and Q.7b:2
	Airport long-term parking, 1 to 3 days	Q.7a:3 and Q.7b:3 and Q.7c:01-03
	Airport long-term parking, 4 to 7 days	Q.7a:3 and Q.7b:3 and Q.7c:04-07
	Airport long-term parking, over 7 days	Q.7a:3 and Q.7b:3 and Q.7c>07
	Airport long-term parking, duration inknown	Q.7a:3 and Q.7b:9
	All airport long-term parking	In lines 8-13 above
	Off-airport parking, up to 4 hours	Q.7a:4 and Q.7b:1
	Off-airport parking, 4 up to 24 hours	Q.7a:4 and Q.7b:2
	Off-airport parking, 1 to 3 days	Q.7a:4 and Q.7b:3 and Q.7c:01-03
	Off-airport parking, 4 to 7 days	Q.7a:4 and Q.7b:3 and Q.7c:04-07
	Off-airport parking, over 7 days	Q.7a:4 and Q.7b:3 and Q.7c>07
	Off-airport parking, duration unknown	Q.7a:4 and Q.7b:9
	All off-airport parking	In lines 15-20 above

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Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
L	Vehicle parking duration	
	Up to 4 hours	Q.7b:1
	Over 4 hours, up to one day	Q.7b:2 or (Q.7b:3 and Q.7c:01)
	Two days	Q.7b:3 and Q.7c:02
	Three days	Q.7b:3 and Q.7c:03
	Four days	Q.7b:3 and Q.7c:04
	Five days	Q.7b:3 and Q.7c:05
	Six days	Q.7b:3 and Q.7c:06
	Seven days	Q.7b:3 and Q.7c:07
	Eight days	Q.7b:3 and Q.7c:08
	Nine days	Q.7b:3 and Q.7c:09
	Ten days	Q.7b:3 and Q.7c:10
	Over ten days	Q.7b:3 and Q.7c>10
	Unknown	Q.7b:3 and Q.7c:99
M	Access to transit modes	
	Walk	Q.8:1
	Drive and park	Q.8:2
	Dropped off	Q.8:3
	Taxicab	Q.8:4
	Other public transit	Q.8:5
	Other	Q.8:6
	Unknown	All Q.5:1-2 not in lines 1-6 above

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
N	Destination airport	Based on the three-letter code at Q.14, as follows:
	Trans-Pacific (except Hawaii)	ADL,AKL,APW,BKK,BMH,BNE,CAN,DPS,GLT,HAN,HKG, HKT,KIX,KUL,MEL,MNL,NRT,PMR,PPT,PVG,SGN,SIN,SXT, SYD,TPE
	Hawaii	HNL,KOA,LIH,OGG
	Los Angeles Basin	BUR,LAX,ONT,PSP,SNA
	San Diego region	CLD,SAN
	Other California	OAK,SAC,SBA,SFO,SJC,SMF,SMX,TVL
	Pacific Northwest, Alaska	AKN,ALW,ANC,BLI,CLM,EAT,EUG,FAI,GEG,JNU,KTN, MFR,PDX,PSC,RDM,SEA,SIT,SNP
	Other FAA West region	ABQ,AMA,ASE,BIL,BOI,BTM,BZN,COD,COS,CPR,CRT, DEN,DRO,EAR,ELP,FCA,FLG,GJT,GTF,GUC,HKA,HLN, HTH,IDA,JAC,LAS,LBB,LWS,MSO,PHX,PRC,RAP,RNO, SAF,SGU,SLC,SUN,TUS,U93
	Central & Midwest regions	ABI,ABR,AEX,ATW,AUS,AZO,BIS,BTR,CHI,CID,CLL,CMI, CRP,DAL,DFW,DSM,FAR,FSD,FSM,FWA,GRB,HOU,HRL, IAH,ICT,JAN,LIT,LNK,MCI,MDW,MEM,MFE,MKE,MKG,MLI, MOB,MOT,MSN,MSP,MSY,OKC,OMA,ORD,PIA,ROG,RST, SAT,SBN,SGF,SHV,STL,TUL,TVC
	East region	ABE,ACK,AGS,ALB,ATL,AVP,BDL,BGM,BGR,BHM,BNA, BOS,BTV,BUF,BWI,CAE,CHO,CHS,CLE,CLT,CMH,CRW, CSG,CVG,DAY,DCA,DTW,ERI,EWR,FLL,FNT,GNV,GRR, GSO,GSP,HPN,HSV,IAD,IND,ISP,ITH,JAX,JFK,JRO,JYV, LEX,LGA,MBS,MCO,MDT,MGW,MHT,MIA,NYC,ORF,PBI, PHL,PIT,PNS,PVD,PWM,RDU,RIC,ROC,RSW,SCE,SDF, SRQ,SWF,SYR,TLH,TOL,TPA,TPF,TRI,TYS,WAS
	Canada	YEG,YKM,YLW,YOW,YQB,YUL,YUR,YVL,YVR,YWG,YYC, YYJ,YYT,YYZ
	Central & South America, Caribbean	ACA,AUA,BJX,BON,CCS,CUN,GCM,GDL,GIG,GRU,LIM, MBJ,MEX,MQV,MTY,NAS,PCC,SJD,SJU,SXM,TAB
	North & South Atlantic	AMS,ARN,BCN,BDA,BER,BGW,BHX,BLL,BLQ,BLR,BOM, BRU,BUD,CAI,CAS,CDG,CGN,CPH,CPT,CTA,DAM,DEL, DUB,DUS,DXB,EDI,ELL,FCO,FRA,GLA,GOT,GVA,HAM, HEL,HYD,INV,IST,JNB,LGW,LHR,LIN,LIS,LON,LYS,MAD, MAN,MEL,MIL,MME,MUC,MXP,NBO,NCE,NWI,ORK,OSL, OTP,PMI,PRG,SGI,SNN,SOF,SVO,SVQ,THR,TIR,TLS,TLV, TXL,VCE,VIE,VNO,WAW,XNA,ZRH
	Unknown	Unknown

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
OA	Travel party composition	
	One adult	Q.15a:0 and Q.15b:01
	Two adults	Q.15a:0 and Q.15b:02
	One adult, one child	Q.15a:1 and Q.15b:01
	Three adults	Q.15a:0 and Q.15b:03
	Three, including children	(Q.15a+Q.15b)=3 and Q.15a>0
	Four or more adults	Q.15a:0 and Q.15b>03
	Four or more, including children	(Q.15a+Q.15b)>3 and Q.15a>0
	Unknown	all others
OB	Number of wellwishers	
	None	Q.10:0
	One	Q.10:1
	Two	Q.10:2
	Three or more	Q.10:3+
P	Travel party checked bags	
	None	Q.16a:0
	One	Q.16a:1
	Two	Q.16a:2
	Three	Q.16a:3
	Four	Q.16a:4
	Five or more	Q.16a>4
	Unknown	all others
Q	Bags per travel party adult	Compute BPTPA = (Q.16a+Q.16b)/Q.15b
	Zero	(Q.16a+Q.16b)=0 and Q.15b>=1
	Up to one	0<BPTPA<=1.0
	Over one up to two	1.0<BPTPA<=2.0
	Over two up to three	2.0<BPTPA<=3.0
	Over three up to four	3.0<BPTPA<=4.0
	Over four	4.0<BPTPA
	Unknown	all others

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
R	Time between inbound & outbound trips*	
	Same day	Q.17b:1
	One night	Q.17b:2
	Two nights	Q.17b:3 and Q.17b'=2
	Three nights	Q.17b:3 and Q.17b'=3
	Four nights	Q.17b:3 and Q.17b'=4
	Five nights	Q.17b:3 and Q.17b'=5
	One week	Q.17b:3 and Q.17b'=6
	Over one week up to two weeks	Q.17b:3 and 6<Q.17b'<=13
	Over two weeks	Q.17b:3 and Q.17b'>13
	Unknown	all others
S	Inbound airport and arrival time*	
	Oakland	Q.17c:1
	06:01 to 09:00	Q.17c:1 and Q.17d from 06:01A through 09:00A
	09:01 to noon	Q.17c:1 and Q.17d from 09:01A through 12:00P
	12:01 to 15:00	Q.17c:1 and Q.17d from 12:01P through 15:00P
	15:01 to 18:00	Q.17c:1 and Q.17d from 15:01P through 18:00P
	18:01 to 21:00	Q.17c:1 and Q.17d from 18:01P through 21:00P
	After 21:00	Q.17c:1 and Q.17d from 21:01P through 06:00A
	Arrival time unknown	Q.17c:1 and Q.17d:missing
	San Francisco	Q.17c:2
	06:01 to 09:00	Q.17c:2 and Q.17d from 06:01A through 09:00A
	09:01 to noon	Q.17c:2 and Q.17d from 09:01A through 12:00P
	12:01 to 15:00	Q.17c:2 and Q.17d from 12:01P through 15:00P
	15:01 to 18:00	Q.17c:2 and Q.17d from 15:01P through 18:00P
	18:01 to 21:00	Q.17c:2 and Q.17d from 18:01P through 21:00P
	After 21:00	Q.17c:2 and Q.17d from 21:01P through 06:00A
	Arrival time unknown	Q.17c:2 and Q.17d:missing
	San Jose	Q.17c:3
	06:01 to 09:00	Q.17c:3 and Q.17d from 06:01A through 09:00A
	09:01 to noon	Q.17c:3 and Q.17d from 09:01A through 12:00P
	12:01 to 15:00	Q.17c:3 and Q.17d from 12:01P through 15:00P
	15:01 to 18:00	Q.17c:3 and Q.17d from 15:01P through 18:00P
	18:01 to 21:00	Q.17c:3 and Q.17d from 18:01P through 21:00P
	After 21:00	Q.17c:3 and Q.17d from 21:01P through 06:00A
	Arrival time unknown	Q.17c:3 and Q.17d:missing

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Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
	Other, or airport unknown	Q.17c:4
T	Egress trip mode*	
	Picked up by private vehicle	Q.17e:1
	Private vehicle, parked	Q.17e:2
	Rental vehicle	Q.17e:3
	All personal vehicle	In lines 1-3 above
	Train	Q.17e:6
	Regular transit bus	Q.17e:7
	Scheduled airport bus	Q.17e:8
	All transit services	In lines 5-7 above
	Taxicab, limousine	Q.17e:4
	Shared-ride van	Q.17e:5
	Charter bus	Q.17e:9
	All such services	In lines 9-11 above
	Other, or unknown	Q.17e:10 or missing
U	Bay Area residence*	
	San Francisco	Q.18c:San Francisco zips
	Alameda County	Q.18c:Alameda zips
	Oakland	Q.18c:Oakland zips
	Contra Costa County	Q.18c:Contra Costa zips
	San Mateo County	Q.18c:San Mateo zips
	Santa Clara County	Q.18c:Santa Clara zips
	San Jose	Q.18c:San Jose zips
	Marin County	Q.18c:Marin zips
	Sonoma County	Q.18c:Sonoma zips
	Napa County	Q.18c:Napa zips
	Solano County	Q.18c:Solano zips
	Other zip codes	Q.17a:1 and zip not in list
	Unknown	Q.18c:zip missing or incomplete

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
VA	<u>Annual departures from OAK*</u>	
	Zero	Q.21b:0 or (missing with other Q.21 answers present)
	Once	Q.21b:1
	Twice	Q.21b:2
	Three times	Q.21b:3
	Four times	Q.21b:4
	Five times	Q.21b:5
	6 to 10 times	Q.21b:6-10
	11 to 15 times	Q.21b:11-15
	16 to 20 times	Q.21b:16-20
	21 to 25 times	Q.21b:20-25
	Over 25 times	Q.21b>25
	Unknown	Q.21b:missing and no other Q.21 answers present
VB	<u>Annual departures from SFO*</u>	
	Zero	Q.21d:0 or (missing with other Q.21 answers present)
	Once	Q.21d:1
	Twice	Q.21d:2
	Three times	Q.21d:3
	Four times	Q.21d:4
	Five times	Q.21d:5
	6 to 10 times	Q.21d:6-10
	11 to 15 times	Q.21d:11-15
	16 to 20 times	Q.21d:16-20
	21 to 25 times	Q.21d:20-25
	Over 25 times	Q.21d>25
	Unknown	Q.21d:missing and no other Q.21 answers present

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Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
VC	Annual departures from SJC*	
	Zero	Q.21e:0 or (missing with other Q.21 answers present)
	Once	Q.21e:1
	Twice	Q.21e:2
	Three times	Q.21e:3
	Four times	Q.21e:4
	Five times	Q.21e:5
	6 to 10 times	Q.21e:6-10
	11 to 15 times	Q.21e:11-15
	16 to 20 times	Q.21e:16-20
	21 to 25 times	Q.21e:20-25
	Over 25 times	Q.21e>25
	Unknown	Q.21e:missing and no other Q.21 answers present
VD	Annual departures from all Bay Area airports*	ADBAA = Q.21a + Q.21b + Q.21c + Q.21d + Q.21e + Q.21f
	Once	ADBAA=1
	Twice	ADBAA=2
	Three times	ADBAA=3
	Four times	ADBAA=4
	Five times	ADBAA=5
	6 to 10 times	ADBAA=6-10
	11 to 15 times	ADBAA=11-15
	16 to 20 times	ADBAA=16-20
	21 to 25 times	ADBAA=21-25
	Over 25 times	ADBAA>25
	Unknown	ADBAA=0
W	Gross household income last year*	
	Less than $20k	Q.22:1
	$20k to less than $40k	Q.22:2
	$40k to less than $60k	Q.22:3
	$60k to less than $80k	Q.22:4
	$80k to less than $100k	Q.22:5
	$100k to less than $125k	Q.22:6
	$125k to less than $150k	Q.22:7
	$150k to less than $200k	Q.22:8
	At least $200k	Q.22:9
	Unknown	Q.22:10

Specification and interpretation of the cross-tabulations

Tbl.	Label	Definition
X	<u>Sources of information</u>	
	Airport desk, brochure, call	Q.11:1
	Travel agent	Q.11:2
	Business contacts	Q.11:3
	Family, friends	Q.11:4
	Public transport provider	Q.11:5
	Hotel concièrge, flyer	Q.11:6
	Traffic information	Q.11:7
	Travel guide	Q.11:8
	Internet site	Q.11:9
	Other	Q.11:10
	None, don't know	Q.11:11
Y	<u>Most important influences</u>	
	Door-to-door trip time	Q.12:1
	Dependability	Q.12:2
	Cost	Q.12:3
	Travel party size	Q.12:4
	Amount of luggage	Q.12:5
	Rental car return	Q.12:6
	Parking considerations	Q.12:7
	No personal vehicle option	Q.12:8
	No public transport option	Q.12:9
	Comfort, convenience	Q.12:10
	Safety, security	Q.12:11
	Someone else decided	Q.12:12
	Other	Q.12:13
	None	Q.12:missing

Notes:

This exhibit provides only a summary, intended to assist data users in the interpretation of the information presented in the tables by reference to the questionnaire elements from which they were derived. The full cross-tabulation specifications have been provided to the clients in the form of a detailed *MS Excel* workbook.

The majority of tables (those describing today's common landside and airside travel by all members of the same travel party) use the set of weights A. A small number of tables (with asterisked titles in this exhibit) use the set of weights B.

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Specification and interpretation of the cross-tabulations

Table numbering conventions

The full table number (which is printed at the head of each table) comprises the codes for the airport and year, followed by the alphabetic table identification listed in Exhibit 20. So, for instance, Table F2A is the version of Table A for SFO from the 2002 survey.

The choice of weights for further analysis of the data

It should be remembered that we have computed two alternative weights for each respondent, and both of them are appended to the respondent's record:

- Weight A is used for variables describing travel patterns that are (by definition of what constitutes a "travel party") the same for all members of the travel party. Examples are details of the ground access trip (origin, mode, etc.) and details of today's air trip (flight, destination airport, etc.). This weight imputes to the whole travel party the responses received from any members thereof.

- Weight B is used for variables describing aspects that are *not* necessarily the same for all members of the same travel party. Examples include personal characteristics (sex, household income, etc.) and details of the corresponding in-bound flight.

Tables which should be interpreted carefully

The 2001 and 2002 Airline passenger Surveys were designed primarily to provide an accurate measure of ground access patterns to each of the region's three large commercial airports. That task can be undertaken most efficiently by using a sample of the sort adopted here −that is, by drawing a representative sample of departing flights, and further sampling the passengers boarding them. We chose the sample of flights in such a way as to ensure that the airside factors believed to influence ground access behaviors the most were taken into account. So, for example, we wanted to be sure that the sample correctly reflected the distribution of travelers by air trip distance, because that factor is associated with the duration of the trip, the amount of luggage taken, and so on.

Several of the tables included within the standard reference sets are intended to provide information about the characteristics of the survey *sample* rather than about the *universe* of all ground access passengers that the sample was intended to represent. This observation applies in particular to Tables B, CA, and CB, and to a lesser extent to Table N. To cite the most obvious example, where Table C shows zero sample passengers departing from the subject airport on a particular midweek day, that should not be interpreted as characteristic of *all* departing trips from that airport. Rather, it reflects the fact that flights were not sampled at that airport on the day of the week in question, on

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Specification and interpretation of the cross-tabulations

the principle that there is no reason to expect that the ground access patterns vary significantly between Tuesdays, Wednesdays, and Thursdays.

Similarly, Table B's distribution of passengers by departing airline can be expected to reflect the *broad patterns* for the major carriers at each airport (particularly since airline was one of the implicit stratification factors used in drawing the sample of flights). However, at the tail of the distribution, airlines with relatively few flights per week should not be expected to be represented in their correct passenger proportions, because one or two airlines will be standing proxy for many others that are not explicitly included in the sample.

The same type of "lumpiness" in the sample will also affect Table N, showing the reported *ultimate* destinations of the sampled passengers' air travel commencing from a Bay Area airport. Again, the sample design ensured that the issued sample of flights correctly represented the distribution of departing seats by six broad categories of *first* destination. But the longer distance (particularly intercontentinental) flights tend to be operated by relatively large capacity equipment operated relatively infrequently. One sampled 747-400, 777, or Airbus 340 flight operated by a foreign carrier will be representing in the sample several others operated in the same general direction by a range of other carriers. And whether it just so happens that a sampled flight is destined for (say) Heathrow or Gatwick, or for Frankfurt or Madrid, can obviously have a major influence on the set of ultimate passenger destinations reported from that flight.

The focus of our sample design was not on the air trip but on the ground access trip. Such questions as airline choice and destination and routing details are better addressed from other available sources, particularly those based on ticket samples.

Cross-airport tables

In developing the cross-airport tables presented in Chapter 2, in order to accumulate across airports to provide the total column it is necessary to reflect the relative travel volumes to each of the three airports. We asked MTC and the airports to provide us with whatever enplanements and connecting passenger proportions data were agreed to be the most meaningful "control total" for each airport/year combination. Exhibit 21 shows the figures used for each airport in constructing the cross-airport tables.

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Specification and interpretation of the cross-tabulations

Exhibit 21. Control totals used in accumulating across airports

	Airport		
	OAK	SFO	SJC
2001			
Total annual enplanements	5,697,121	17,055,968	6,544,055
Proportion of originating passengers	97.0%	76.8%	92.8%
2002			
Total annual enplanements	6,373,241	15,431,397	5,563,354
Proportion of originating passengers	97.0%	76.8%	94.9%

The precision of survey-derived estimates

Accuracy – a matter of survey design

How well survey data describe the larger population that they are intended to represent is affected primarily by two things: the size of the survey sample, and how closely it mirrors the characteristics of the parent population. If the sample has been selected using random sampling principles,[27] and if high proportions of the issued sample have agreed to participate, then the achieved sample can usually be assumed to be an unbiased representation of the larger group from which it was selected.

However, logistical and budgetary constraints frequently limit the ability to select a truly random sample, and significant proportions of the issued sample are often unreachable or refuse to participate. In these circumstances, the achieved sample may be biased in some way, and unless there exist other, clearly more accurate sources of information about the parent population with which to compare the survey data, the extent and effects of the bias(es) are frequently unknowable. Such biases affect the *accuracy* of the survey data: that is, how close the statistics derived from the survey match those of the parent population.

In the case of the MTC Airline Passenger Surveys, intended to represent all originating passengers making ground access trips to the three airports during the survey periods, the survey method was designed to produce a reasonably representative sample at an acceptable cost. Some participants would inevitably be harder to reach or more likely to refuse interviews than others, but we chose an

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[27] That is, a sample in which the relative probability of selecting each member of the parent population is either equal or known.

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Specification and interpretation of the cross-tabulations

approach that sought to minimize potential sources of bias that might be anticipated to affect the findings significantly.

Precision – a matter of sample size

But if the *accuracy* of survey-derived estimates frequently is unknowable, the *precision* of the estimates *can* be quantified, once one is prepared to assume that the sample is accurate. Precision describes the statistical uncertainty in the population estimate of a statistic, given the sample estimate and certain characteristics of the sample, most importantly its absolute size. Where, unlike this case, the sample is a relatively large proportion of the total population under study, the precision is also affected by the magnitude of that proportion, the "sampling fraction." Precision is most often expressed as the range of values within which the population statistic can be expected to lie with 95% or 90% confidence. This is the statistic most often quoted in media presentations of survey-derived data.

The *standard error* of a survey statistic is valuable both in determining the precision of the population estimates and in testing for the statistical significance of differences between different subsamples. Because the achieved sample was weighted to correct for varying sampling probabilities and response rates, the standard errors are larger than they would be for an unweighted sample. Computing sampling errors analytically or heuristically in such cases can be a complex process, but the following procedure provides a reasonable approximation. Survey researchers speak of the "effective sample size" as the size of that simple random sample that would provide approximately equal precision levels to that of the more complex sample. For any sample or subsample, it is computed as the unweighted sample size divided by $(1 + c^2)$, where c is the coefficient of variation[28] in the weights applied.

So, for example, the full sample from the 2002 SFO survey was 3,710 respondents, weighted such that the weighted sample size also totaled 3,710. By examining the variation in the weights, we conclude that the precision provided by the sample is equivalent to that of a simple random sample of about 2,587 respondents. Since many significance tests are implicitly based on an underlying assumption of a simple random sample, it is the *effective* sample size that is used as the *n* value in computing the standard error and in significance test formulæ.

For example, consider computing the 95% confidence interval for the proportion of summer 2002 passengers departing from SFO for whom that airport is at "the home end" of their trips. From Table F2A, that proportion is 42.3%. When (as here) the sample is small by comparison with the parent population, the standard error of the survey statistics is dependent only on the absolute size of

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[28] The coefficient of variation is the standard deviation divided by the mean. These statistics are available for each breakdown variable in Table W2.

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Specification and interpretation of the cross-tabulations

the sample, not on the size of the sampling fraction. The standard error (se_p) of a proportion p is approximated by the formula

$$se_p \approx \sqrt{\frac{p \times (1 - p)}{n}}$$

The value for n used in this formula should be the "effective sample size" provided near the head of the column from which the proportion is drawn. In this case, using the 2002 full sample for SFO, the appropriate value for n is consequently 2,587. The standard error for the 42.3% statistic is consequently 0.97%.

The 95% confidence interval for the population estimate is ±1.96 times the standard error.[29] This means that the confidence interval for the 42.3% statistic from Table A is ± (1.96 x 0.97%) ≈ ±1.9%. Hence, assuming that the survey sample is representative of all 2002 ground access passengers from SFO, there is a 95% probability the proportion of all such passengers for whom SFO is at the home end of their air trips lies within the range 42.3% ± 1.9%.

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[29] The 90% confidence interval is ±1.645 times the standard error.

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FULL-SIZED QUESTIONNAIRE COPIES FOLLOW

Finally, about yourself (for classification purposes only)

18. Where is **your home**?

_____ _____
City or town   State or country   Zip code, if in USA

19. In total, how many people live in your household, including yourself?

adults (aged 16+)

children (up to 15)

20. Are you . . . ❏ male? ❏ female?

21. In the last twelve months, how many times have you flown out of each of these airports? (*Include today's trip; where none, enter zero*)

Monterey Airport _____

Oakland International Airport _____

Sacramento International Airport _____

San Francisco International Airport _____

San José International Airport _____

Sonoma County Airport (Santa Rosa) _____

22. What was the **total combined income** (before taxes) for everyone living in your household for the year 2000? (*Check one only*)

❏ under $20,000
❏ $20,000 to under $40,000
❏ $40,000 to under $60,000
❏ $60,000 to under $80,000
❏ $80,000 to under $100,000

❏ $100,000 to under $125,000
❏ $125,000 to under $150,000
❏ $150,000 to under $200,000
❏ $200,000 or more
❏ I can't say

23. Optional:

If you would be willing to answer some more questions in the future about your use of the airports in the Bay Area, please provide your name and preferred contact details below. If you prefer to remain anonymous, leave this question blank. We will not share this information with anyone else, but use it only for future air passenger surveys.

Name: _____

Full mailing address: _____

_____

Telephone: (_____)_____ (_____)_____
daytime   evenings, weekends

e-mail address: _____ @ _____

Thank you very much for your help. Please hand your completed questionnaire to the survey staff before boarding, or mail it back to us postage-free.

5

San Francisco Bay Area Airline Passenger Survey, 2001

Why you have been given this questionnaire

This airport, in cooperation with the Metropolitan Transportation Commission and your airline, is conducting a survey to help improve travel to and from the airport.

Who should complete the questionnaire

Every person aged 16 or older boarding this flight – except for those who arrived here by air – is asked to fill out a questionnaire. When several people are traveling together, each one (except for children aged 15 or under) should complete his or her own form.

How to return completed questionnaires

Hand the completed form to one of the surveyors before boarding the plane, or put it in a marked collection box. If you don't have time to complete it fully now, take it with you, complete it later, fold it so the postage-paid address is on the front, and drop it in any mail box as soon as possible.

All your replies are completely confidential. Thank you for your help – it is very important to us.

About your trip to the airport for this flight

1. **Which flight are you taking** (or were you taking when given this form)?

_____ _____ on _____ _____, 2001
airline   flight no.   month   date

For the Bay Area transportation agencies to improve ground travel options to this airport, it is very important for us to know exactly where passengers start their trips to get to the airport. Please **give as much detail as you are able**. The information will be kept confidential.

2. **From what address** did you start your trip **today** (on the ground) to the airport for this flight?

_____
Building, firm, or specific location name, if applicable (e.g., hotel name, a notable building, or private firm)

_____
Street address, with number (or name of the nearest cross street)

_____ _____ _____
City or town   State   Zip code, *if you know it*

1

continue inside ➜

3. Is the place where you started your trip to the airport . . . (*Check one only*)

- ❏ your own home?
- ❏ someone else's home?
- ❏ a place of business?
- ❏ a hotel, motel, inn, etc.?
- ❏ a restaurant?
- ❏ a convention center?
- ❏ a school or college?
- ❏ another type of place? (*write in:*)

_____

4. **At what time** did you . . .

leave the above starting point? [ ] : [ ]   ❏ A.M. ❏ P.M.
   hour   mins.

arrive inside the airport terminal? [ ] : [ ]   ❏ A.M. ❏ P.M.
   hour   mins.

5. How did you arrive at the airport **today**? (*Check one only to show the form of transport you used to reach the airport or nearby parking or rental car facilities*)

- ❏ **private vehicle** (car, van, SUV, motorcycle, etc.)
- ❏ **rental vehicle** (car, van, SUV, etc.)
  } *continue with* **question 6**
- ❏ shuttle bus from a **train** (BART, Caltrain, or VTA light rail)
- ❏ a **regular transit bus** route (not from a train)
- ❏ **scheduled bus** to the airport only (sometimes called *Airporter*)
  } *skip to* **question 8**
- ❏ **taxicab**
- ❏ a **hotel/motel courtesy shuttle**
- ❏ **pre-arranged limousine** serving your travel party alone
- ❏ **pre-arranged shared-ride van** giving door-to-terminal service
- ❏ **chartered bus**, carrying your tour group only
- ❏ by some other means
  (*What?* _____)
  If you're not sure which box to check, write the firm name here
  } *skip to* **question 9**

6. If you came by a private or rental vehicle, were any passengers dropped off **at the curb** in front of the terminal entrance?

- ❏ **yes**, some passengers were dropped at the terminal curb
- ❏ **no**, passengers were not dropped at the curb

7. If you came by private vehicle, was it . . . (*Check one only*)

- ❏ driven away from the airport by someone **without being parked**?
- ❏ **parked** in a **short-term lot or garage** at the airport?
- ❏ **parked** in a **long-term lot** (or economy/overflow lot) at the airport?
- ❏ **parked** in a **lot or garage** off the airport grounds?

For **how long** do you expect it to be parked? (*Check one only*)

- ❏ 4 hours or less
- ❏ over 4 hours but less than 24 hours
- ❏ longer than 24 hours; For how many *days* (or part days)?   [ ]
   total days

8. If you came to the airport by train or bus, **how did you get to the place where you boarded** the train or bus? (*Check all that apply*)

- ❏ walk
- ❏ drive and park
- ❏ dropped off there
- ❏ taxicab
- ❏ other public transit
- ❏ some other way (*write in:* _____)

9. Will your ground transportation to the airport or your parking cost **be reimbursed** by your employer or other organization? (*Don't count payment by a friend or relative.*)

- ❏ **yes**, some or all of the costs will be paid back to me
- ❏ **no**, my costs will not be reimbursed

10. How many people have come into the terminal just to see you (and other members of your travel party) off?

Enter the number (if none, enter zero): [ ]

11. In deciding how to travel to the airport today, did you personally consult any of the following sources of information? (*Check up to three to show the **most important** sources of information*)

- ❏ airport information desk, brochure, or phone number
- ❏ travel agent
- ❏ business contacts
- ❏ friends or family
- ❏ public transport brochure, display, or phone number
- ❏ hotel concierge, flyer
- ❏ traffic information (radio, TV, *TravInfo*® 817-1717, etc.)
- ❏ travel guide (*which?* _____)
- ❏ internet site(s) (*which?* _____)
- ❏ other (*what:* _____)
- ❏ none of these, or don't know

12. What are the most important reasons that influenced how you traveled to the airport today? (*Check up to three to show the **most important** reasons*)

- ❏ door-to-door travel time
- ❏ dependability
- ❏ cost
- ❏ the size of your travel party
- ❏ the amount of your luggage
- ❏ need to return a rental car
- ❏ parking considerations
- ❏ no private vehicle available
- ❏ no public transport available
- ❏ comfort, convenience
- ❏ safety or security concerns
- ❏ someone else decided for me
- ❏ another reason (*write in:* _____)

About your air travel today

13. Is your air travel today primarily **part of a business trip**?

- ❏ **yes**, my main reason for traveling has to do with my paid employment
- ❏ **no**, my main reason for traveling has nothing to do with business

14. What will be your **final destination airport** on today's air trip?

_____   _____
airport   *US state or foreign country*

15. In total, how many people **in your personal travel party** came to the airport in the same vehicle and are traveling on the same flight with you? (**Don't forget to count yourself**. *If none in a category, enter zero*)

number of people aged 15 or under: [ ]

number of people aged 16 or over, **including you**:   [ ]

How many of the people aged 16 or over are filling out a questionnaire of their own, **including you**?   [ ]

16. In total, how many **pieces of luggage** are all the people you counted in Question 15 taking on this flight? (*If none, enter zero*)

total number of pieces of luggage checked: [ ]

total number of carry-on pieces: [ ]

17. Is this airport at **the "home" end of your air trip**?

❏ **yes**	❏ **no**
What day will you return to the Bay Area?	What day did you arrive in the Bay Area?
❏ today	❏ today
❏ tomorrow	❏ yesterday
[ ] number of days after today	[ ] number of days ago
Which airport will you return to?	Which airport did you arrive at?
❏ Oakland International	❏ Oakland International
❏ San Francisco International	❏ San Francisco International
❏ San José International	❏ San José International
❏ **none of these**, or don't know	❏ **none of these**
What time of day will your return flight arrive in the Bay Area?	What time of day did your flight arrive in the Bay Area?
[ ] : [ ] ❏ A.M. ❏ P.M. *hour mins.*	[ ] : [ ] ❏ A.M. ❏ P.M. *hour mins.*
How do you expect to travel from the airport when you return? (*Check all that apply*)	How did you travel from the airport when you arrived? (*Check all that apply*)
❏ picked up by someone else in a private vehicle	❏ shared-ride van
❏ private vehicle, parked at the airport	❏ train (BART, Caltrain, VTA)
❏ rental vehicle	❏ regular transit bus
❏ taxicab, limousine	❏ scheduled airport bus
	❏ charter bus
	❏ some other way, or not sure

Algo sobre usted (para propósitos de clasificación solamente)

18. ¿Dónde es **su hogar**?

_____ _____ ┌──────────┐
ciudad o pueblo   estado o país   │   │
                                                         └──────────┘
                                                         Zip code, si en EU

19. En total, ¿cuánta gente vive   adultos (edad 16+) ┌────┐
    en su hogar,   └────┘
    incluyéndose a usted?   niños (hasta los 15) ┌────┐
                                                               └────┘

20. Es usted . . .   ❏ ¿varón? ❏ ¿mujer?

21. En los últimos doce meses, ¿cuántas veces ha volado usted desde los siguientes aeropuertos de la región? (*Incluya el viaje de hoy; si ninguna, marque cero*)

Monterey Airport _____

Oakland International Airport _____

Sacramento International Airport _____

San Francisco International Airport _____

San José International Airport _____

Sonoma County Airport (Santa Rosa) _____

22. ¿Cuáles son los **ingresos annuales** de su hogar, antes de impuestos? (*Marque solo uno*)

❏ menos de US$20,000   ❏ US$100,000 a < $125,000
❏ US$20,000 a < $40,000   ❏ US$125,000 a < $150,000
❏ US$40,000 a < $60,000   ❏ US$150,000 a < $200,000
❏ US$60,000 a < $80,000   ❏ US$200,000 o más
❏ US$80,000 a < $100,000   ❏ no sabría decir

23. **Opcional:**

Si estuviera dispuesto/a a responder más preguntas sobre su uso de los aeropuertos del Bay Area, por favor proporcione su nombre y dirección preferida aquí. Si prefiere permanecer anónimo/a, deje esta pregunta en blanco. No compartiremos la información con más nadie, pero la usaremos solo para encuestas de pasajeros aéreos.

Nombre: _____

Dirección completa: _____

_____

Teléfono: (_____)_____ (_____)_____
                    durante el día   noche y fines de semana

dirección de e-mail: _____ @ _____

Muchas gracias por su ayuda. Por favor pase su cuestionario a los trabajadores de la encuesta antes de abordar, o nos los puede mandar por correo sin costo alguno para usted.

5

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San Francisco Bay Area
Encuesta de Pasajeros de Aerolíneas, 2001

Por qué le han dado este cuestionario

Este aeropuerto, en conjunto con la Comisión Metropolitana de Transporte y su aerolínea, está llevando a cabo una encuesta para mejorar el transporte hacia y del aeropuerto.

Quién debería completar este cuestionario

Cada persona de 16 años o mayor abordando este vuelo – excepto aquellos que han llegado al aeropuerto por vía aérea – que por favor llene un cuestionario. Cuando hay varias personas viajando juntas, cada persona (excepto los niños de 15 años o menos) debería completar su proprio formulario.

Cómo devolver los cuestionarios que han sido completados

Le puede dar su cuestionario a uno de los trabajadores de la encuesta, o ponerlo en una de las cajas marcadas de recolección. Si en estos momentos no tiene tiempo para completarlo, por favor lléveselo, rellénelo más tarde, dóblelo para que la dirección postal quede del lado delantero, y póngalo en cualquier buzón de correo tan pronto le sea posible.

Todas sus respuestas serán completamente confidenciales. Gracias por su ayuda – es muy importante para nosotros

Sobre su transporte al aeropuerto para abordar este vuelo

1. **¿Qué vuelo estaba abordando cuando le dieron este formulario?**

_____ _____ el _____ _____ de 2001
aerolínea   # de vuelo   mes   dia

Para que el aeropuerto y las agencias locales de transporte puedan mejorar las opciones de transporte a este aeropuerto, es muy importante que sepamos de dónde salieron los pasajeros hacia el aeropuerto. Al contestar la siguiente pregunta, por favor **proporcione todo el detalle que le sea posible**. La información se mantendrá confidencial.

2. **PARA LLEGAR ESTE AEROPUERTO HOY ¿Desde qué lugar** salió hacia el aeropuerto para abordar este vuelo?

_____
Edificio o el nombre de cualquier otro lugar, si existe (nombre de un hotel, edificio notable, o compañia privada)

_____
Dirección exacta, con número (o el cruce más cercano)

_____ _____ ┌──────────┐
Ciudad o pueblo   Estado   │   │
                                                    └──────────┘
                                                    Zip code, si sabe

prosiga
adentro ➔

1

3. El lugar de donde salió para el aeropuerto es. . . (*especifique uno solamente*)

- ❏ ¿su propia casa?
- ❏ ¿la casa de otra persona?
- ❏ ¿un lugar de negocio?
- ❏ ¿un hotel, motel, inn, etc.?
- ❏ ¿un restaurante?
- ❏ ¿un centro de convenciones?
- ❏ ¿una escuela o universidad?
- ❏ ¿otro lugar? (*especifique:*

_____)

4. **¿A qué hora** usted. . .

salió del lugar mencionado arriba? [hora   ] : [mins.   ] ❏ A.M. ❏ P.M.

entró a la terminal del aeropuerto? [hora   ] : [mins.   ] ❏ A.M. ❏ P.M.

5. ¿Cómo llego al aeropuerto **hoy**? (*Marque uno para indicar la forma de transporte que usó para llegar al aeropuerto o algún estacionamiento cercano o a la compañía de alquiler de autos*)

- ❏ **vehículo privado** (auto, "van," jeep, moto, etc.)
- ❏ **vehículo alquilado** (auto, "van," jeep, etc.) } *siga con la* **pregunta 6**
- ❏ bus "shuttle" desde un **tren** (BART, Caltrain, or VTA)
- ❏ una **línea regular de bus** (no de un tren)
- ❏ **un bus** que va al aeropuerto solamente (a veces llamado *Aeroporter*) } *salte a la* **pregunta 8**
- ❏ **taxi**
- ❏ un **shuttle de un hotel o motel**
- ❏ **limosina pre-reservada** acompañado solamente por aquellos viajando con usted
- ❏ **"van" compartido pre-reservado** que da servicio de puerta a puerta
- ❏ **bus alquilado**, llevando solo a su grupo de tour
- ❏ otra clase de transporte (*¿Cuál* _____) } *salte a la* **pregunta 9**

  si no está seguro sobre qué marcar, escriba el nombre de la compañía aquí

6. Si llegó en un vehículo privado o alquilado, ¿se dejo a algun pasajero **en la acera** en frente de la entrada de la terminal?

- ❏ **sí**, algunos pasajeros fueron dejados en la acera de la terminal
- ❏ **no**, ningún pasajero fue dejado en la acera de la terminal

7. ¿Si llegó en un vehículo privado fue . . . (*Marque solo uno*)

- ❏ Retirado del aeropuerto por alguien **sin ser estacionado**?
- ❏ **Estacionado** en un **estacionamiento de corto plazo**?
- ❏ **Estacionado** en un **estacionamiento de largo plazo**?
- ❏ **Estacionado** en un estacionamiento **fuera de los terrenos del aeropuerto**?

¿Por **cuánto tiempo** estima que el vehículo va a permanecer estacionado? (*Marque solo uno*)

- ❏ 4 horas o menos
- ❏ más de 4 horas pero menos de 24 horas
- ❏ más de 24 horas; Por cuántos días (o partes de día)? [   ]

2

abra y prosiga adentro ➔

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8. Si llego al aeropuerto en tren o bus, **¿cómo llego al lugar donde se montó** en el tren o bus? (*Marque una o más*)

- ❏ caminando
- ❏ manejando y estacionando
- ❏ dejado por alguien
- ❏ taxi
- ❏ otro transporte público
- ❏ en otra manera (*escriba:*

_____)

9. ¿Los costos de su transporte al aeropuerto o del estacionamiento **van a ser reembolsados** por su compañía u otra organización? (*No incluya dinero de un amigo o familia.*)

- ❏ **sí**, parte o todos los costos van a serme reembolsados a mí
- ❏ **no**, mis costos no van a serme reembolsados

10. ¿Cuánta gente vino a la terminal a despedirlo a usted (y a otros miembros de su grupo de viaje)?

Escriba el número (si es "ninguna" marque cero): [   ]

11. Al decidir cómo llegar al aeropuerto hoy, ¿consultó alguno de los tipos de información aquí mencionados? (*Marque no más de tres para demostrar los tipos de información **más importantes***)

- ❏ punto de información del aeropuerto, panfleto
- ❏ agente de viajes
- ❏ contactos de negocios
- ❏ amigos o familia
- ❏ panfleto de transporte público, letrero
- ❏ concièrge de hotel, panfleto
- ❏ información de tráfico (radio, TV, *TravInfo®* 817-1717, etc.)
- ❏ guía de viajes (*cuál?* _____)
- ❏ sitio(s) de internet (*cuál?* _____)
- ❏ otro (*cuál:* _____)
- ❏ ninguno de éstos, o no sé

12. ¿Qué fue lo que más influyó su decision de cómo llegar al aeropuerto hoy? (*Marque tres para mostrar las razones **más importantes***)

- ❏ tiempo de viaje, puerta a puerta
- ❏ confiabilidad
- ❏ costo
- ❏ el número de personas viajando con usted
- ❏ la cantidad/tamaño de sus maletas
- ❏ la necesidad de regresar un auto de alquiler
- ❏ consideraciones de estacionamiento
- ❏ no tenía un vehículo privado disponible
- ❏ no tenía transporte público disponible
- ❏ comodidad, conveniencia
- ❏ seguridad
- ❏ alguien decidió por mí
- ❏ otra razón (*escriba:*

_____)

13. ¿Su transporte aéreo hoy es primordialmente parte de **un viaje de negocios**?

- ❏ **sí**, la razón principal de mi viaje tiene que ver con trabajo remunerado
- ❏ **no**, mis razones de viaje no tienen nada que ver con trabajar

14. Cuál será su **aeropuerto de destino final** en el viaje de hoy?

_____ _____
aeropuerto   estado de los EU o país

3

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15. En total, cuánta gente en su **grupo personal de viaje** vino al aeropuerto en el mismo vehículo y se van en el mismo vuelo con usted? (***No olvide incluírse a sí mismo.** Si alguna categoría no aplica, marque cero*)

cantidad de personas de 15 años o menos: [   ]

INCLUYENDOSE A USTED, cantidad de personas de 16 años o más: [   ]

¿Cuántas personas de 16 años o más están rellenando un cuestionario, **incluyendo a usted**? [   ]

16. ¿En total, cuántas **piezas de equipaje** llevan todas las personas que marcó en la pregunta número 15? (*Si ninguna, marque cero*)

número total de piezas de equipaje facturadas: [   ]

número total de piezas de equipaje en cabina: [   ]

17. ¿Está usted iniciando **su viaje en este aeropuerto**?

❏ **sí**	❏ **no**
¿Qué día regresa al Bay Area?	¿Qué día llegó al Bay Area?
❏ hoy ❏ mañana	❏ hoy ❏ ayer
[ ] número de días a partir de hoy	[ ] número de días desde que llegó
¿A cuál aeropuerto regresa?	¿A cuál aeropuerto llegó?
❏ Oakland International	❏ Oakland International
❏ San Francisco International	❏ San Francisco International
❏ San José International	❏ San José International
❏ **ninguno de éstos**, o no sé	❏ **ninguno de éstos**
¿A qué hora llega su vuelo de regreso al Bay Area?	¿A qué hora llegó su vuelo al Bay Area?
[hora] : [mins.] ❏ A.M. ❏ P.M.	[hora] : [mins.] ❏ A.M. ❏ P.M.
¿Cómo espera irse del aeropuerto cuando regrese? (*Marque todas las que apliquen*)	¿Cómo se fue del aeropuerto cuando llegó? (*Marque todas las que apliquen*)
❏ recogido por alguien en un vehículo privado	❏ van compartido
❏ vehículo privado, estacionado en el aeropuerto	❏ tren (BART, Caltrain, VTA)
❏ vehículo del alquiler	❏ bus de vía regular
❏ taxi, limosina exclusiva	❏ bus especial de aeropuerto
	❏ bus alquilado
	❏ otra manera, o no sabe

4

doble y prosiga ➔

14. 今日のフライトは仕事関係の旅行の一部ですか？

❏ はい、仕事関係でこの旅行をしています。　　❏ いいえ、この旅行は仕事とはまったく関係ありません。

15. 今日の最終目的地はどこですか？

_____　_____
　　　　　　　　　空港　　　　　　　　　　　　　　　　　　　　州、または国

16. 合計で何人が一緒に同じ車で空港まで来て、同じフライトに搭乗されますか？

15 歳以下の人数：　[　　]　　　　16 歳以上の人数（自分を含む）：　[　　]

16 歳以上で何名が別々にこの調査に回答していますか？（自分を含む）　[　　]

17. 合計でいくつの荷物をこのフライトに持ち込まれますか？（15 でカウントした人数全員分）

チェックインした荷物数：[　　]　　　機内持ち込み荷物数：[　　]

あなた自身について（分類目的のみに使用します）

18. どちらにお住まいですか？

_____　_____
　　　　　　　　市/タウン名　　　　　　　　　　　　　　　　　　州/国名

19. 何人一緒にお住まいですか？　　大人（*16 歳以上、自分も含めて*）　[　　]

子供（*15 歳まで*）　[　　]

20. あなたは　　❏ 男性　　　❏ 女性

21. この *1* 年（*過去 12 ヶ月*）でそれぞれの空港から何回フライトに搭乗されましたか？（今日の分も含めて記入をしてください ― 必ずどこかに数字が入ることになります）

モントレーエアポート　_____

オークランド インターナショナル エアポート　_____

サクラメントインターナショナル エアポート　_____

サンフランシスコインターナショナル エアポート　_____

サンノゼインターナショナル エアポート　_____

ソノマカウンティ エアポート　（Santa Rosa）　_____

22. あなたの家族（一緒に住んでいる方）全体の *2000* 年 *1* 年間の収入を教えてください。（税引き前）

❏ US$20,000 未満
❏ US$20,000 以上 $40,000 未満
❏ US$40,000 以上 $60,000 未満
❏ US$60,000 以上 $80,000 未満
❏ US$80,000 以上 $100,000 未満

❏ US$100,000 以上 $125,000 未満
❏ US$125,000 以上 $150,000 未満
❏ US$150,000 以上 $200,000 未満
❏ US$200,000 以上
❏ 回答したくない

ご協力ありがとうございました。
記入の終わった用紙は調査の係りの者に手渡すか、専用の回収箱に入れてください。

サンフランシスコ ベイエリア
空港利用者調査 2001 年

調査目的
この空港から出発するまたは、到着する空港利用者の空港と空港からの交通の利便性向上のため航空会社と空港管理会社である Metropolitan Transportation Commission がこの調査を実施しています。

調査対象者
この便を利用するすべての旅行者が対象となります。何名かでご一緒に旅行されている場合でも、15 歳以上の方はすべて別々の用紙に回答してください。

回収方法
記入し終わった用紙はご自分の便に搭乗される前に調査の係りの者に手渡すか、またはこの調査専用の回収箱の中に入れてください。

みなさまからの回答は機密管理されます。　この回答がとても重要な情報となります。ご協力ありがとうございます。

このフライト（便）を利用するための空港までの交通手段について

1. どちらのフライトをご利用ですか？

2001 年_____ 月 _____ 日の _____航空 _____便

空港とその地域の交通利便性向上のために、正確な情報をみなさまから回答いただくことが大変重要となります。次の質問にはできるだけ詳しくお答ください。回答された情報は機密管理されます。

2. 今日どこからこの空港に来られましたか？住所でお答ください。

ビル名（ホテル名、建物の名等）_____

番地 （番地とストリート名）_____

市 （シティ名）_____　州（ステート）_____　[　　　]
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　郵便番号

3. どのような場所からこの空港まで来られましたか？ （*該当するもの 1 つだけ回答してください*）

❏ 自宅
❏ 知人、またはどなたかの家
❏ 仕事関係の場所
❏ ホテル、モーテル、イン等

❏ レストラン
❏ コンベンションセンター（会議場）
❏ 学校関係の施設
❏ その他（_____）

4. 何時に

上記の場所を出発されましたか？　[　　]：[　　]　❏ A.M.　❏ P.M.
　　　　　　　　　　　　　　　　　hour　mins.

この空港内に到着されましたか？　[　　]：[　　]　❏ A.M.　❏ P.M.
　　　　　　　　　　　　　　　　　hour　mins.

5. 今日どのようにこの空港までこられましたか？　（*該当するもの 1 つだけ回答してください*）

- ❏ **個人所有の車**（車、バン、オートバイ等）
- ❏ **レンタカー**（車、バン等）

⎫ *質問 6 へ*

- ❏ **電車の駅からのシャトルバス**（BART, Caltrain, VTA light rail からのバス）
- ❏ 通常のルート**バス**（駅からのは除く）
- ❏ **空港行きのシャトルバス**（*Airporter*、エアーポーター）

⎫ *質問 8 へ*

- ❏ **タクシー**
- ❏ ホテル、モーテルからの**シャトルバス**
- ❏ **予約制のリムジン**（ご自分のグループのみ利用）
- ❏ **予約制のバン**（予約した場所から空港までの乗合いバン）
- ❏ **チャーターバス**（ご自分のツアーグループのみ利用）
- ❏ その他（*何で?* ＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿＿）

⎫ *質問 9 へ*

6. 個人所有の車で空港まで来られた場合、あなた自身（またはグループのどなたか）ターミナル前の車寄せで降りられましたか？

- ❏ **はい**、 車寄せで降りました。
- ❏ **いいえ**、 誰も車寄せで降りませんでした。

7. 個人所有の車で空港まで来られた場合、その車は（*該当するもの 1 つだけ回答してください*）

- ❏ どなたかが駐車することなく乗って行かれた
- ❏ 空港内の短期駐車場、またはガレージに駐車された
- ❏ 空港内の長期駐車場、またはガレージに駐車された
- ❏ 空港外の駐車場、またはガレージに駐車された

その車はどれだけ駐車する予定ですか？　（*該当するもの 1 つだけ回答してください*）

- ❏ 4 時間以内
- ❏ 4 時間以上、24 時間以内
- ❏ 24 時間以上：何日間の予定ですか？　☐☐ 日間

8. 電車またはバスで空港まで来られた場合、どのようにして電車またはバス乗り場まで行かれましたか？（*該当するものすべて回答してください*）

- ❏ 徒歩
- ❏ 車/駐車
- ❏ どなたかに送ってもらった
- ❏ タクシー
- ❏ その他の公共交通機関
- ❏ その他（＿＿＿＿＿＿＿＿＿＿＿＿）

9. あなたの交通にかけた費用（駐車料金も含む）はあなたの会社が支払いますか？

- ❏ **はい**、 全額、または一部会社が支払います。
- ❏ **いいえ**、 全額自分で払います。

10. 何人の人があなた（またはあなたのグループの人）を見送りにこの空港に来ましたか？

数字で記入してください: ☐☐

---

11. 今回この空港にどのように来るかは、どのような情報を利用して決められましたか？（該当するうち最も重要な情報を 3 つまで回答してください）

- ❏ 空港の情報デスク、パンフレット、電話等
- ❏ 旅行会社
- ❏ 仕事関係
- ❏ 友達または家族
- ❏ 公共交通機関のパンフレット、掲示、電話番号等
- ❏ ホテルのコンシェルジェ、ちらし
- ❏ 交通情報（ラジオ、TV、*TravInfo®* 817-1717、 etc.）
- ❏ 旅行ガイド（どの？＿＿＿＿＿＿＿＿＿＿＿）
- ❏ インターネット（＿＿＿＿＿＿＿＿＿＿＿）
- ❏ その他（＿＿＿＿＿＿＿＿＿＿＿）
- ❏ 上記のどれでもない、またはわからない

12. 今回のこの空港に来る方法はどのような理由から、決められましたか？（該当する理由の中で最も当てはまると思うものから 3 つ回答してください）

- ❏ 家から空港までの所要時間
- ❏ 確実性
- ❏ 費用
- ❏ 旅行グループの人数
- ❏ 旅行荷物の個数
- ❏ レンタカーの返却の必要性
- ❏ 駐車への考慮
- ❏ 個人所有車が使用できなかった
- ❏ 公共交通機関がなかった
- ❏ 快適性、利便性
- ❏ 安全性
- ❏ 誰か他の人が決めた
- ❏ その他（＿＿＿＿＿＿＿＿＿＿＿）

今日のフライト（便）について

13. この空港はあなたにとって旅行の最後に戻ってくる空港ですか？

❏　　　はい	❏　　　いいえ

いつベイエリアに戻ってきますか？

- ❏ 今日
- ❏ 明日
- ☐☐ 日後

どちらの空港に戻って来られる予定ですか？

- ❏ オークランド インターナショナル
- ❏ サンフランシスコ インターナショナル
- ❏ サンノゼ インターナショナル
- ❏ **上記のどれでもない**、またはわからない

何時にあなたの便はベイエリアに戻ってきますか？

☐☐ : ☐☐　❏ A.M.　❏ P.M.
hour　mins.

空港からはどのように移動される予定ですか？
（該当するものすべて回答してください）

- ❏ 他の人が個人所有の車で迎えに来た/来る
- ❏ 空港内に駐車してある個人所有の車
- ❏ レンタカー
- ❏ タクシー、リムジン等
- ❏ 乗合いのバン

いつベイエリアに着きましたか？

- ❏ 今日
- ❏ 昨日
- ☐☐ 日前

どちらの空港に到着しましたか？

- ❏ オークランド インターナショナル
- ❏ サンフランシスコ インターナショナル
- ❏ サンノゼ インターナショナル
- ❏ **上記のどれでもない**

何時にあなたの便はベイエリアに着きましたか？

☐☐ : ☐☐　❏ A.M.　❏ P.M.
hour　mins.

空港からはどのように移動しましたか？
（該当するものすべて回答してください）

- ❏ 電車（BART, Caltrain, VTA）
- ❏ バス（通常のルートバス）
- ❏ エアポート直通のバス/チャーターバス
- ❏ その他、またはわからない